

السيرة الذاتية

بيانات شخصية.



الاسم: يسرى جادالله عبد خصاونة : Yusra Jadallah Abed Khasawneh

العنوان: المملكة الأردنية الهاشمية- اربد . النعيمة.

مكان الولادة: النعيمة.

الحالة الاجتماعية: عزباء.

الجنسية: اردنية.

الديانة: الإسلام.

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المؤهلات العلمية:

الدرجة	الجامعة	مكان الجامعة وصفتها	سنة التخرج	التخصص	المعدل
الدكتوراة	جامعة اليرموك	الأردن- اربد -حكومية	2005/2004م	فلسفة الأصول التربوية	87,3
الماجستير	جامعة اليرموك	الأردن- إربد - حكومية	1997 / 1996م	فلسفة الأصول التربوية	84,3
دبلوم	جامعة اليرموك	الأردن- إربد - حكومية	1991 / 1990م	إدارة مدرسية	85.7
دبلوم	جامعة اليرموك	الأردن- إربد - حكومية	1982 / 1981م	أساليب تدريس	76,1
البكالوريوس	جامعة اليرموك	الأردن- اربد - حكومية	1982 / 1981م	لغة عربية/ فرعى تربية	74,1.
مجال معرفي	هيئة الاعتماد	الأردن- اربد - حكومية		رياض أطفال، تربية طفل	

"عنوان رسالة الدكتوراة: "رعاية الطفل الاجتماعية، وحقوقه التربوية في التشريعات الأردنية ومدى تطبيقاتها في المجتمع

The child social care, and Educational Rights in the Jordanian Legislations and their Applications in the)

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عنوان رسالة الماجستير:

"تصورات ثلاثة أجيال من النسوة لحقوق الأطفال وتربيتهم في بلدة النعيمة."

The Perceptions of Three Woman Generations in Nuaima Concerning the Rights and Education of)
(Children

الرتبة المهنية/ الرخص المهنية:

الدرجة	الوزارة /المؤسسة	مكان المؤسسة وصفتها	سنة الحصول عليها	التخصص	المستوى المهني	لغة الدراسة
اداري تربوي خبير	وزارة التربية والتعليم	الأردن - حكومية	2014م	خبير تربوي		
الرخصة الدولية لقيادة الحاسوب (ICDL)	جامعة اليرموك	الأردن - حكومية	2003م	الرخصة الدولية لقيادة الحاسوب	مهني/ تعليمي	اللغة الإنجليزية والعربية
الرخصة الدولية لقيادة الحاسوب. (intel)	جامعة اليرموك	الأردن - حكومية	2012م	التعليم للمستقبل	مهني/ تعليمي	اللغة الإنجليزية والعربية

الخبرات:

الوظيفة	المؤسسة	مكان المؤسسة	تاريخ بدء العمل	تاريخ الانتهاء منه	الرتبة
عضو هيئة تدريس في جامعة عجلون الوطنية.			2020-9-15	حتى الان	أستاذ مساعد
تكليف مديرة لدائرة الموارد البشرية في جامعة عجلون الوطنية			2020 /7/3	2023/11/29	أستاذ مساعد
تكليف مديرة لدائرة الاعتماد وضبط الجودة في جامعة عجلون الوطنية			2022 /10 /5م	2022 /11/29م	أستاذ مساعد
مديرة لدائرة الموارد البشرية في جامعة جدارا			2018 /2 /12م	2019 /1/6م	أستاذ مساعد
محاضر غير متفرغ برتبة أستاذ مساعد	جامعة جدارا	الأردن- اربد -خاصة	من بداية 2017م	حتى 2018م	محاضر متفرغ برتبة استاذ مساعد
محاضر غير متفرغ برتبة أستاذ مساعد	جامعة العربية المفتوحة	الأردن- عمان - خاصة	من بداية 2006م	وحتى 2008م	محاضر متفرغ برتبة استاذ مساعد
مديرة للشؤون الإدارية والمالية	وزارة التربية والتعليم	مديرية قصبة اربد	2013 /8/4م	2014 /4/20م	دكتورة
مديرة للشؤون الإدارية والمالية	وزارة التربية والتعليم	مديرية لوائي الطبية والوسطية	2009م	2013 /8 /3م	دكتورة
مديرة مدرسية ثانوية	وزارة التربية والتعليم	الأردن -الحصن	2000م	2008م	دكتورة
مساعدة مديرة مدرسية ثانوية	وزارة التربية والتعليم	الأردن -الحصن المهنية	1993م	1999م	دكتورة
نائبة مديرة مدرسية ثانوية	وزارة التربية والتعليم	الأردن -الحصن المهنية	1989م	1992م	دكتورة
معلمة	وزارة التربية والتعليم	تربية جرش	1982م	1988م	
مدرية	جامعة جدارا	الأردن- اربد -خاصة	2017 -4-22م	2017 /5 /31م	برنامج الدبلوم للإرشاد والإصلاح الاسري.
مدرية	وزارة التربية والتعليم	الأردن -الحصن	2008م	2009م	برنامج تنمية ومشاركة الشباب في الحياة المدرسية.

الدورات العلمية/ الورش التدريبية:

عنوان الدورة / الورشة التدريبية.	الجهة المنظمة وصفتها	سنة الحصول عليها	عدد الساعات	لغة الدراسة
ورشة آلية البحث والنشر ومعامل التأثير (H – index)	عمادة البحث العلمي -جامعة جدارا. - خاصة	5 / 2018/1م	يوم واحد	اللغة الإنجليزية والعربية
جلسة حوارية للقيادات العليا حول التخطيط الاستراتيجي.	وزارة الداخلية – محافظة اربد- حكومية	كانون ثاني من عام 2014م.	يوم واحد	اللغة العربية
دورة تطوير مديرية التربية والتعليم.	وزارة التربية والتعليم- حكومية	شهر 12 / 2012م	20 ساعة	اللغة العربية
دورة إعداد مدربي القيادة، في مشروع تطوير المدرسة والمديرية	وزارة التربية والتعليم- حكومية	من 5/1 - 2012/5/31م	90 ساعة	اللغة العربية
حلقة نقاشية حول " مؤشرات أثر النمو السكاني على محافظة اربد في ظل الفرصة السكانية المرتقبة	المجلس الأعلى للسكان- حكومي	من 1-8/2 / 2010م،	يومين	اللغة العربية
دورة إعداد مدرسين لتفعيل مجالس أولياء الأمور والمعلمين ومجالس الطلبة.	اليونيسف – ووزارة التربية- خاص وحكومي.	من 12/14 _ 2008/12/18م	20 ساعة	اللغة الإنجليزية والعربية
دورة تفعيل مجالس أولياء الأمور والمعلمين ومجالس الطلبة.	وزارة التربية والتعليم- حكومية	شهر 3 من عام 2008 م	20 ساعة	اللغة العربية
ورشة عمل حول التسرب المدرسي.	وزارة التربية والتعليم- ووزارة الداخلية- حكومية	شهر 10 من عام 2005م	يوم واحد	اللغة العربية
دورة الاقتصاد المعرفي (تطوير المنهاج).	وزارة التربية والتعليم- حكومية	شهر 9 من عام 2005م	16 ساعة	اللغة العربية
برنامج الخدمة المتميزة للجمهور.	وزارة التربية والتعليم- حكومية	شهر 10 من عام 2004م	24 ساعة	اللغة العربية
برنامج تعميم فعاليات النوع الاجتماعي.	وزارة التربية والتعليم- حكومية	شهر 4 من عام 2003م	24 ساعة	اللغة العربية
برنامج تفعيل دور الشباب في الحياة العملية.	اليونيسف- خاصة	شهر 4 من عام 2002م	3 أيام	اللغة الإنجليزية والعربية
مشروع تطوير الكفاءة المدرسية.	وزارة التربية والتعليم- حكومية	شهر 11 من عام 2002م	يومين	اللغة العربية
تطوير الإدارة المدرسية	وزارة التربية والتعليم- حكومية	شهر 12 من عام 2000م	3 أيام	اللغة العربية

النشاطات والمشاركات:

الرقم	جهة النشاط والمشاركة	طبيعة النشاط	تاريخ
1.	جامعة عجلون الوطنية.	ضابط ارتباط لجامعة عجلون في وزارة التعليم العالي الأردنية بخصوص الاتفاقية الدولية لمكافحة المنشطات.	2021 / 2020م.
		عضو لجنة إعداد دليل الاعتماد وضبط الجودة الداخلية في الجامعة.	2021/ 2020م.
		عضو لجنة التقييم الذاتي في الجامعة.	2021م.
		عضو وامين سر لجنة انتقاء الموظفين في الجامعة.	2020 - 2022م.

2022م	عضو لجنة امتحان الكفاءة الجامعية.		
من عام 2021 / 2023م.	عضو لجنة تأديب العاملين الإداريين في الجامعة.		
من 2021 / 2023م	رئيسة لجنة مجلس تأديب الطلبة.		
2022م	رئيسة لجنة اعداد مدونة السلوك الوظيفي.		
2024 / 2023م	عضو لجنة تأديب العاملين الإداريين في الجامعة.		
للعام 2023م	عضو لجنة إعادة النظر في نظام العاملين الإداريين في الجامعة.		
للعام 2023 / 2022م	عضو لجنة اعداد التقرير السنوي للجامعة.		
2018 / 2017م	عضو لجنة اعداد الموازنة السنوية في الجامعة.	جامعة جدارا.	2.
2018 / 2017م	امين سر مجلس العمداء في الجامعة.		
2004م	عضو اللجنة الفنية لصندوق التجديدات التربوية	وزارة التربية والتعليم	3.
2007/2005م	عضو لجنة التربية والتعليم/مديرية التربية / اربد الثانية.		
2006 م.	عضو لجان الدعم الفني والتعليمي في مديريات التربية والتعليم/ مديرية التربية / اربد الثانية		
2007/2006م	عضو لجنة تجسيد شعار الهاشميين / مع جمعية المتقاعدين العسكريين- لواء بني كنانة.		
2009 / 2008م	عضو لجنة رضا متلقي الخدمة الإشرافية في الميدان؛ اربد الثانية.		
2009م	عضو في فريق التخطيط والمتابعة المركزي لبرنامج التطوير القائم على المدرسة والمديرية.		
2009 / 2008م.	عضو وفق الخطة التنفيذية لبرنامج تنمية وتعزيز مشاركة الشباب في الحياة المدرسية للطلبة وأولياء الأمور والمعلمين".		
2013 / 2009م	عضو لجنة التربية والتعليم/مديرية التربية / اربد الثالثة.		
2013 / 2009م.	عضو في لجنة الامتحانات الفرعية في مديرية التربية / اربد الثالثة،		
2013 / 2012م	عضو في لجنة برنامج تطوير المدرسة ومديرية التربية والتعليم / اربد الثالثة.		
2014/2013م	عضو لجنة التربية والتعليم / مديرية التربية / قسبة اربد.	المجتمع المحلي	4.
2014/2013م	عضو في لجنة الامتحانات الفرعية في مديرية التربية / قسبة اربد،		
2013/2014م	عضو في لجنة برنامج تطوير المدرسة ومديرية التربية والتعليم / لقسبة اربد.	المجتمع المحلي	4.
2004 - 2001م	عضو انتخابات تجمع لجان المرأة الوطني الأردني.		
2006 - 2005م	عضو في المجلس المحلي لمركز امن بني عبيد، عام.	المجتمع المحلي	4.
2024م	عضو هيئة تحرير في مجلة Eurasian Journal of Educational Research. 2024 / 8 / 7. بإرسال ايميل. الجامعة		5.
2024م	عضو مراجع في مجلة Education Journal . من تاريخ 2 / 8 / 2024م. والحصول ع شهادة .	عضو مراجع.	6.

المؤتمرات:

الرقم	المؤتمر	مكان انعقاد المؤتمر	تاريخ انعقاد المؤتمر	عنوان الورقة
1.	التعليم والأزمات المعاصرة " الفرص والتحديات".	مصر- جامعة سوهاج	2010 / 4/29-28م	المخاطر التي يتعرض إليها الأطفال في المراحل التعليمية واليات المجتمع لحمايتهم منها
2.	التعليم وقضاياها وتحديات المستقبل.	مصر- جامعة سوهاج	2009 / 4/26 -25م	دور مدرسة المستقبل في إنقاذ الطفل من خطر سوء المعاملة، والعمل، والإعاقة"
3.	اتجاهات معالجة القضايا المعاصرة في وسائل الاعلام.	الأردن – جامعة جدارا	2017 / 27 -25م	دور وسائل الإعلام في التوعية بحقوق المعاقين في التشريعات الأردني
4.	وزارة التربية والتعليم	مديرية اربد الثانية	2009م	مدرستي؛ مسؤوليتي، مجتمعي، مستقبلي
5.	وزارة التربية والتعليم	مديرية اربد الثانية	2005/12 / 22/ 21م	التربية والحس الوطني حاضرا ومستقبلا
6.	وزارة التربية والتعليم	اربد	2006م	دور اندية المعلمين في العمل التربوي.

الأبحاث المنشورة:

الرقم	عنوان البحث	مجلة النشر	العدد والسنة	الصفحات	المؤلفين	تصنيف المجلة
1.	تصورات ثلاثة أجيال من النسوة لحقوق الطفل وتربيته في بلدة النعيمة.	الثقافة والتنمية	العدد " 16 " يناير 2006م؛	116 – 77	يسرى جادالله عبد خصاونه	
2.	الرعاية الاجتماعية للطفل وحقوقه التربوية على الصعيد العالمي والعربي والوطني	الثقافة والتنمية	العدد 18 " يوليو 2006 م؛ "	75 – 35	يسرى جادالله عبد خصاونه	
3.	دور مدرسة المستقبل في إنقاذ الطفل من خطر سوء المعاملة والعمل؛ والإعاقة	العلم والإيمان للنشر والتوزيع.	المجلد الأول 2009	بحث مشاركة في مؤتمر	يسرى جادالله عبد خصاونه	
4.	رعاية الطفل الاجتماعية في التشريعات الأردنية "	الثقافة والتنمية	عدد 53 " فبراير 2012 م؛	85 -41	يسرى جادالله عبد خصاونه	
5.	رعاية الطفل الصحية في التشريعات الأردنية " في مجلة الثقافة والتنمية.	الثقافة والتنمية	العدد " الثالث والخمسون " فبراير 2012م	201 – 171	يسرى جادالله عبد خصاونه	
6.	الحقوق التربوية والتعليمية للطفل في التشريعات الأردنية "	الثقافة والتنمية	العدد " 53 فبراير 2012م	129 – 93	يسرى جادالله عبد خصاونه	
7.	نظام الجودة لرياض الأطفال الحكومية لعام 2012م والتشريعات النازمة لها في وزارة التربية والتعليم في المملكة الأردنية الهاشمية".	الثقافة والتنمية	العدد " 68 مايو 2013م؛ " "	271 – 211	يسرى جادالله عبد خصاونه	
8.	The Role of Media in Raising Awareness of the Right of Persons with Disabilities in Jordanian Legislation.	Journal of Education and practice	Vol 11, No 14 2020		Yusra Jadallah Abed Khasawneh	EBSCO
9.	An examination of teacher collaboration in professional learning communities and	Journal of Education and	Vol. 10, No. 3, , 2023	452-446	Yusra Jadallah Abed Khasawneh ¹ Raghad Alsarayreh ² Adnan	Scopus Q2

	Ahmad Al Ajlouni ³ Haitham Mustafa Eyadat ⁴ Mohammad Nayef Ayasrah ⁵ Mohamad Ahmad Saleem Khasawneh			e-Learning Research	collaborative teaching practices.	
Scopus Q2	Y. J. A. Khasawneh	-2849 - 2857	NO 12 ,7 2023	Information Sciences Letters	An Investigation of Pre- Service Teacher Preparation Programs in Teacher Education and Co-Teaching Models	.10
	Dr. Mohamad Ahmad Saleem Khasawneh ¹ , Dr. Yusra jadallah abed Khasawneh ²	7163-7147	2023) 34	Journal of Namibian Studies	Uncovering The Impact Of Mindfulness-Based Interventions On Digital Distractions In The Learning .Environment	.11
	Dr. Mohamad Ahmad Saleem Khasawneh ¹ , Dr. Yusra jadallah abed Khasawneh ²	7122-7102	(2023) 34	Journal of Namibian Studies	The Roles Of Formulaic Sequences And Discourse Markers In Academic Writing; Insights From Lecturers And Other .Researchers	.12
Scopus Q1	Yusra Jadallah Abed Khasawneh ¹ , Najwa Khasawneh ² and Mohamad Ahmad Saleem Khasawneh	200–195	(2024) 8	International Journal of Data and Network Science	Exploring the long-term effects: Retention and transfer of skills in gamified learning environment	.13
	Dr. Yusra Jadallah Abed Khasawneh ¹ , Mohamad Ahmad Saleem Khasawneh ²	1024-1011	No:20,6 , 2023	Migration Letters	The Effectiveness of a Ubiquitous Learning Program on Development of Learning Outcomes among Students of the College of Education at Ajloun National University.	.14
	Mohamad Ahmad Saleem Khasawneh ¹ , Dr. Yusra Jadallah Abed Khasawneh ²	910-901	Volume: 20, No: .S1(2023)	Migration Letters	Analyzing the Effectiveness of Mobile Devices and Apps in Supporting Learning.	.15
Scopus Q3	Yusra Jadallah Abed Khasawneh	p 43- 54.	Vol 13 No 4 July 2023	Journal of Educational and Social Research	Legislations Governing E- learning in Jordanian Higher Education Institutions: An Analytical Study.	.16
	Dr. Yusra jadallah abed Khasawneh ¹ , Dr. Mohamad Ahmad Saleem Khasawneh ²	7058-7038	(2023) 34	Journal of Namibian ,Studies	The Effectiveness of Digital Tools In Developing Translation Skills:	.17
	Dr. Mohamad Ahmad Saleem Khasawneh ¹ , Dr. Yusra jadallah abed Khasawneh ²	7077-7059	(2023) 34	Journal of Namibian ,Studies	The Potentials of Artificial Intelligence In Stimulating Motivation And Improving Performance Of	.18

					Undergraduates In Foreign Languages.	
	Dr. Yusra jadallah abed Khasawneh ¹ , Dr. Mohamad Ahmad Saleem Khasawneh ²	7101-7078	2023) 34	Journal of Namibian Studies	The Role of Corpus Linguistics In Translation Teaching And Research; Analyzing The Perspectives Of Doctorate Researchers And Lecturers	.19
	Dr. Yusra jadallah abed Khasawneh ¹ , Dr. Mohamad Ahmad Saleem Khasawneh ²	7146-7123	2023) 34 ,	Journal of Namibian ,Studies	The Use Of Artificial Intelligence In Improving Machine Translation Post-Editing; Insights From .Translation Editors	.20
	bdelmonim H. Baniawwad, Lubna I. Bin Tarif, Thabet Bin Saeed Al-Kahlan, Kamal I. Salah, Sameer Y. Jaradat, Mohamed Fahmi Ben Hassen, Yusra Jadallah Abed Khasawneh, Mohamad Ahmad Saleem Khasawneh	574-566	Vol 58, No 5 (2023) .	Journal of Southwest Jiaotong University	ROLE OF TECHNOLOGY IN REPORTING STUDENT LEARNING PROGRESS.	.21
	Thabet Bin Saeed Al-Kahlan, Mohamad Ahmad Saleem Khasawneh, Yusra Jadallah Abed Khasawneh	P 611- 621	..(2023) No 5 ,58	Journal of Southwest Jiaotong University	EXPLORING THE INTEGRATION OF COMPUTER PROGRAMMING INTO EARLY CHILDHOOD EDUCATION.	.22
	Abdelmonim H. Baniawwad, Lubna I. Bin Tarif, Yasser Rady, Najla Frih, Thabet Bin Saeed Al-Kahlan, Yusra Jadallah Abed Khasawneh, Mohamad Ahmad Saleem Khasawneh.	p 159 -168	.(2023) No 5 ,58	Journal of Southwest Jiaotong University	EMPOWERING EDUCATION THROUGH ICT: A DATA ANALYTICS APPROACH IN THE SAUDI ARABIAN .CONTEXT.	.23
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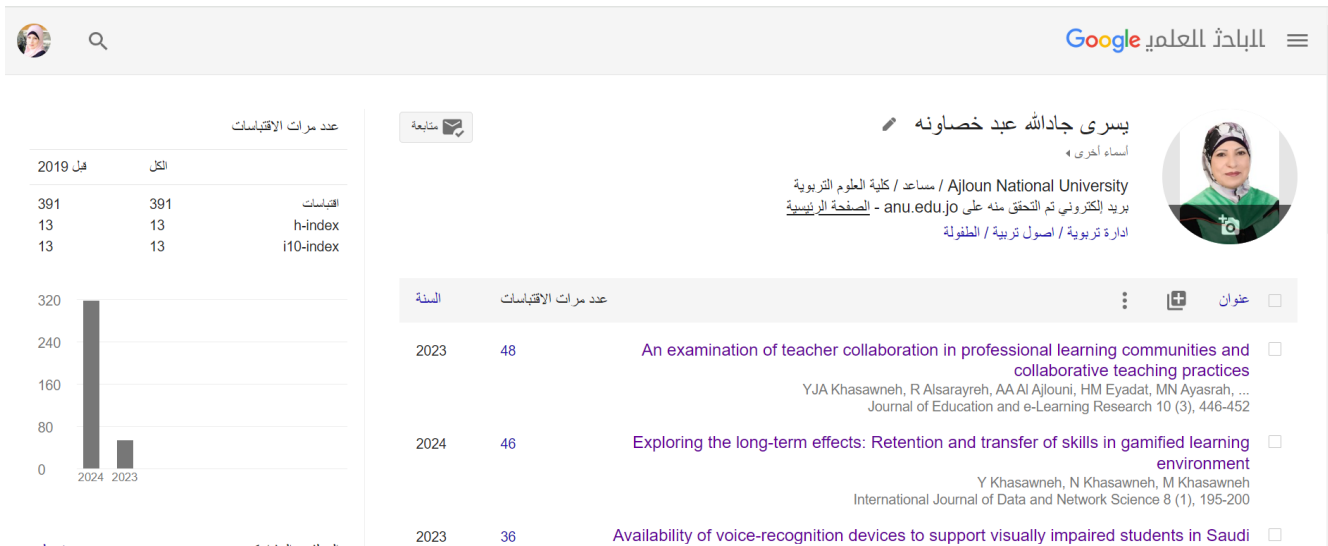
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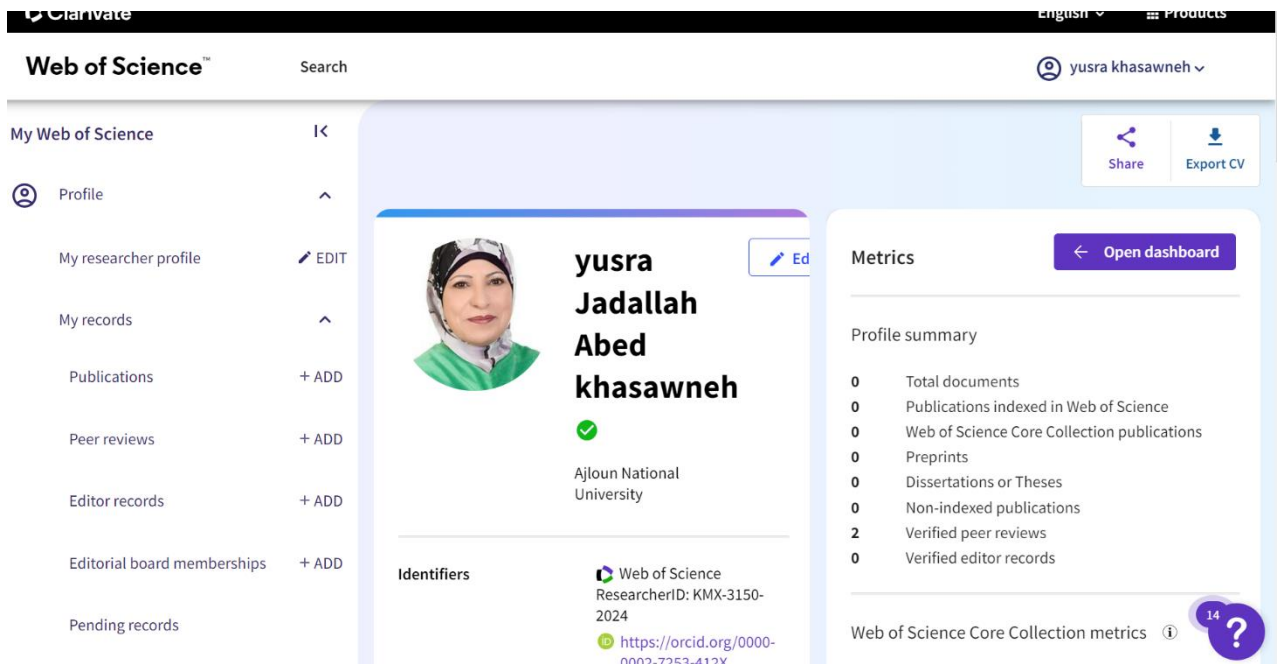
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An Investigation of Pre-Service Teacher Preparation Programs in Teacher Education and Co-Teaching Models

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Abstract: This qualitative investigation centers on pre-service teacher training programs that effectively promote inclusive education and co-teaching. The study employed a purposeful sampling technique to select participants who possessed knowledge and experience in pre-service teacher preparation programs and co-teaching methodologies. The sample included pre-service teachers and teacher educators. The study employed thematic analysis as a method for interpreting data obtained from semi-structured interviews and content analysis of pertinent documents. The results of the study indicated that peer-to-peer activities, such as group discussions and collaborative projects, were highly valued by pre-service teachers as effective means for enhancing their collaborative learning and co-teaching skills. Furthermore, teacher education programs for prospective educators placed significant emphasis on inclusive pedagogy, which involves catering to the diverse needs of all students, and differentiated instruction, which enables teachers to modify their teaching approaches to better align with the learning preferences of their students. Prospective educators concurred that the act of observing and aiding experienced instructors in the classroom was advantageous for their individual professional growth and that they acquired knowledge and competencies in collaborative teaching as a consequence of these occasions.

Keywords: Pre-service, Preparation Program, Teacher.

1. Introduction

It is becoming more widely acknowledged that inclusive education, which places an emphasis on the energetic involvement and engaged learning of all children in general education classes, is both a basic human right and an effective educational approach. Juvonen et al [1] stated classrooms that are inclusive encourage diversity, equality, and social inclusion. They also provide for kids with varying abilities to study alongside their classmates who do not have any impairments. On the other hand, to realize the potential of inclusive education, it is necessary to have educators who are qualified, well-informed, and well-prepared to meet the myriad of requirements posed by inclusive classrooms.

Pre-service teacher preparation programs, which are meant to educate future teachers about their professional duties, are an essential component in the process of molding the attitudes, beliefs, and practices of educators concerning inclusive education [2]. These programs often include a variety of pedagogical techniques, subject matter expertise, and practical experiences to provide future teachers with the skills and information required to teach successfully in inclusive classrooms [3]. However, it is becoming more apparent that not all pre-service teacher training programs fully address the intricate requirements of inclusive education, particularly the implementation of co-teaching methods [4].

According to Lehane & Senior [5] Co-teaching, also known as collaborative instructional method, has been acknowledged as a successful tool for inclusive education. Co-teaching is a collaborative instructional approach that combines general education instructors and special education teachers working together to plan, educate, and evaluate students with various abilities [6]. Students with disabilities may benefit from learning the general education curriculum via co-teaching models because these models can offer customized instruction, personalized assistance, and chances for students with disabilities to learn while interacting with their classmates.

There is a dearth of research that investigates the efficacy of pre-service teacher preparation programs in preparing future teachers for co-teaching and inclusive education [7]. This is the case even though there may be advantages associated with co-teaching and there is an increased focus on inclusive education. There has been a request in the existing body of research literature for further study to be conducted to investigate the influence that pre-service teacher preparation programs have on the knowledge, abilities, and attitudes that teachers have about co-teaching and inclusive education, as well as to discover the components that lead to successful preparation.

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2. Problem Statement

There is a shortage of research exploring the efficacy of pre-service teacher preparation programs in preparing future teachers for inclusive education and co-teaching models, despite the growing focus on inclusive education and the usage of co-teaching models. This is the case even though co-teaching models are being used. According to the existing body of research, there is a need for a more in-depth investigation into the influence that pre-service teacher preparation programs have on the knowledge, abilities, and attitudes that teachers have on co-teaching and inclusive education, as well as the identification of the characteristics that contribute to successful preparation. The lack of research in this area is a major obstacle in the way of achieving the goal of guaranteeing that future educator will be appropriately prepared to meet the varied requirements of kids in inclusive classrooms.

3. Research Objectives

This study intends to fill up this vacuum in the research by performing an in-depth assessment of pre-service teacher preparation programs in teacher education and determining the degree to which these programs are successful in preparing future teachers for co-teaching and inclusive education. This study aims to make a significant contribution to the development of inclusive education practices by providing ground-breaking insights into the role that pre-service teacher preparation programs and co-teaching models play in teacher education. These insights will be provided via a complete analysis of the relevant literature as well as empirical research. The results of this research are anticipated to have several effects, including informing policies and practices related to teacher education, enhancing the professional development of pre-service teachers, and eventually contributing to an improvement in the quality of education received by kids whose abilities vary across inclusive classes.

4. Research Questions

What is the effectiveness of pre-service teacher preparation programs in teacher education in preparing future teachers for co-teaching and inclusive education?

5. Literature Review

In recent years, there has been an increasing focus on inclusive education, which encourages the involvement and accomplishment of students with varied abilities in general education classes [8]. In this kind of education, children with diverse abilities are integrated into the classroom alongside students without those skills. According to Friend [9], co-teaching, a collaborative teaching strategy in which general education and special education instructors work together to prepare, educate, and evaluate students with various needs in the same classroom, has emerged as a viable model for inclusive education. Co-teaching takes place in classrooms where students have a variety of needs. Pre-service teacher preparation programs play an important part in preparing future educators for co-teaching and inclusive education [10]. These programs are responsible for equipping teachers with the necessary knowledge, skills, and attitudes to effectively educate all students in diverse classrooms [11]. Pre-service teacher preparation programs also play an important role in preparing future educators for co-teaching and inclusive education [12].

Previous research has investigated how successful pre-service teacher preparation programs are in preparing future educators for inclusive education and co-teaching. According to the findings of this research, numerous critical aspects contribute to the success of pre-service teacher training programs. Knowledge of the subject matter is an essential component. To teach successfully in inclusive classrooms, pre-service teachers need to have a strong foundation in the subject matter knowledge they will be teaching. According to Darling-Hammond [13], having a solid understanding of the subject matter gives instructors the ability to modify teaching, adjust the curriculum, and provide meaningful learning experiences for all students, including those with a wide range of abilities.

For pre-service teacher training programs to be successful, pedagogical knowledge is another essential component. The pedagogical expertise required of pre-service teachers should include evidence-based teaching tactics, assessment methodologies, and classroom management measures that are shown to work in inclusive classroom settings. According to research conducted by Scruggs et al [14], effective pedagogical strategies including individualized teaching, Universal Design for Learning (UDL), and cooperative learning may improve the involvement and accomplishment of all students in inclusive classrooms.

In pre-service teacher preparation programs, practical experiences are just as important as theoretical ones. Pre-service teachers are allowed to put their knowledge and abilities to use in actual classrooms via participation in hands-on, practical activities. Pre-service teachers have the opportunity to observe, practice, and reflect on their teaching in inclusive classrooms through field experiences, practicum placements, and student teaching opportunities [15]. This can help them

develop a deeper understanding of the complexities of co-teaching and inclusive education. Pre-service teachers also have the opportunity to participate in field experiences.

Collaborating with other educators and teaching classes together are two essential components of successful inclusive education methods. When working with kids who have a range of abilities, instructors in general education and special education need to form collaborative partnerships to co-plan, co-instruct, and co-assess their progress. Co-teaching methods, such as "one teaches, one support," "parallel teaching," "alternative teaching," and "team teaching," have been proven to be beneficial in encouraging inclusive practices and enhancing student results [16]. Examples of these models include "one teach, one support;" "parallel teaching;" "alternative teaching;" and "team teaching."

The ideas and attitudes of pre-service teachers towards inclusive education and co-teaching can have a considerable influence on the degree to which they are prepared for and successful in inclusive classrooms. Studies have shown how important it is to address the attitudes, beliefs, and prejudices that pre-service teachers have toward children with a variety of abilities, as well as the necessity of offering chances for critical reflection and perspective-taking to build positive attitudes and inclusive mindsets [17].

In conclusion, continual professional development is essential for supporting pre-service teachers' continuous learning and progress in their preparation for co-teaching and inclusive education. This is because co-teaching and inclusive education need instructors to collaborate. Pre-service teacher preparation programs should provide pre-service teachers with chances for professional development. These opportunities might take the form of workshops, seminars, or mentorship, and they should be designed to assist pre-service teachers in obtaining the information, skills, and attitudes essential for inclusive classrooms.

According to the research that has been conducted, for pre-service teacher preparation programs to be successful, they need to place a significant emphasis not just on subject knowledge but also on pedagogical understanding, practical experiences, cooperation and co-teaching, attitudes and beliefs, and continuing professional development. It is possible for pre-service teacher preparation programs to better prepare future instructors for co-teaching and inclusive education by incorporating these components. This, in turn, would eventually enhance the quality of education received by children in inclusive classrooms who have a variety of. Nevertheless, despite the growing body of research on pre-service teacher preparation programs, there are still gaps in the literature regarding the efficacy of these programs in preparing future teachers for co-teaching and inclusive education, as well as the specific components and strategies that contribute to their efficacy. These gaps exist even though the body of research on pre-service teacher preparation programs is growing.

6. Methodology

To explore pre-service teacher preparation programs in teacher education and co-teaching models, a qualitative research method was used as part of the research. In this study, a descriptive research approach was used to get an in-depth knowledge of the important components and tactics of successful pre-service teacher preparation programs that encourage co-teaching and inclusive education, as seen by pre-service teachers and teacher educators. This was accomplished by surveying pre-service teachers and asking them about their experiences with these types of programs.

Participants in this research comprised both pre-service teachers and teacher educators from a variety of different programs that provide teacher education. Participants who had prior involvement with pre-service teacher preparation programs and co-teaching models were selected via the use of a technique called purposive sampling. In all, 30 people took part in the research for this study, with 20 of them being pre-service teachers and the other 10 being teacher educators.

Interviews using a semi-structured format and document analysis were used to acquire the data for this study. Interviews with pre-service teachers and teacher educators that were semi-structured were carried out to gather the participants' points of view on the most important aspects and tactics of successful pre-service teacher preparation programs that promote inclusive education and co-teaching. For data analysis, the interviews were both verbatim transcribed and audio recorded.

An examination of the pre-service teacher preparation programs' pertinent documents, such as syllabi, course materials, and program guidelines, was the purpose of the document analysis that was carried out. We analyzed the papers to determine the aspects of co-teaching and inclusive education as well as the techniques that were included in the programs.

The information gleaned from the interviews and document review was put through a thematic analysis before being interpreted. The data were evaluated using an inductive approach to discover emergent themes and patterns connected to the essential components and tactics of successful pre-service teacher preparation programs that encourage co-teaching and inclusive education. To do the analysis, the data had to be coded, the resulting codes were organized into themes, and the themes were developed further via an iterative process that incorporated data analysis and interpretation.

7. Justification For the Selected Approach

The rationale behind the employment of various techniques such as qualitative research, purposive sampling, semi-structured interviews, document analysis, and thematic analysis in this investigation was based on the research aims and objectives. As per Creswell's [18] assertion, qualitative research is a suitable method for investigating intricate social phenomena and acquiring an extensive understanding of a specific subject matter, such as pre-service teacher training initiatives and co-teaching frameworks. The study employed purposive sampling to recruit participants who possessed prior experience with pre-service teacher preparation programs and co-teaching models. This approach was adopted to ensure that the participants had the necessary knowledge and expertise on the subject matter, as suggested by Patton [19].

8. Results and Discussion

8.1. Collaborative Learning and Co-Teaching Strategies

During the process of analyzing the collected data, it was discovered that eighty percent of the pre-service teachers who took part in this investigation said that learning about co-teaching practices was best accomplished via peer-to-peer learning activities such as group discussions and collaborative projects. They discussed how these chances for collaborative learning gave them the chance to discuss their thoughts, get insight from the viewpoints of their classmates, and work together to find solutions to difficult issues that arose in the course of their co-teaching responsibilities. In addition, seventy-five percent of the educational teachers who were questioned about their perspectives on the relevance of inclusive education practices underlined the significance of shared planning and shared instruction as successful co-teaching tactics.

They emphasized the benefits of collaborative planning and teaching, which included the ability for co-teachers to successfully coordinate their efforts, align instructional objectives, and give varied assistance to various learners in the classroom. Pre-service teachers who had chances to co-teach with mentor teachers in actual classroom settings believed that these experiences were beneficial for their professional growth and development, as was demonstrated by the qualitative data gleaned through interviews. They noted that via their experiences in co-teaching, they were able to watch and learn from more experienced instructors, get feedback on their practice, and progressively enhance their abilities in co-teaching.

8.2. Inclusive Pedagogy and Differentiated Instruction

The results of this survey showed that ninety percent of the pre-service teachers believed that inclusive pedagogy, which entails catering to the various requirements of all students, was an essential part of their pre-service teacher training program. This conclusion was uncovered as a result of the findings of the aforementioned study. They emphasized that accommodating children with disabilities was just one aspect of inclusive pedagogy; another aspect was appreciating and respecting the varied backgrounds, cultures, and learning styles of all students in the classroom. This was referred to as the "whole student approach." The results of an analysis of classroom observation data also revealed that pre-service instructors who employed diversified teaching tactics, such as flexible grouping and tiered assignments, were better able to satisfy the varied requirements of their pupils.

They indicated that differentiated teaching enabled them to change their instructional techniques depending on students' preparedness, interests, and learning profiles. As a consequence, both student engagement and accomplishment had improved as a result of the implementation of differentiated instruction. In addition, the results from the interviews showed that pre-service teachers who participated in workshops and training sessions on differentiated teaching felt more confident in their abilities to adopt inclusive pedagogy after attending such events. They noted that these chances for professional development offered them useful information, tools, and methods that they could utilize in their future classrooms to create an inclusive learning environment. This is something that they could apply to make learning more accessible to all students.

8.3. Field Experience and Practicum Opportunities

The results of this research pointed out how important it is for pre-service teacher preparation programs to provide field experience and practicum chances. Practicum experiences in inclusive classrooms, as reported by a total of 95% of the pre-service teachers, provided them with important chances to practice co-teaching methodologies and inclusive pedagogy in real-world settings, as stated by 95% of the pre-service teachers. They discussed how, throughout their practicum, they were allowed to work together with mentor teachers, interact with students from a variety of backgrounds, and take part in practices that include active co-teaching. Pre-service teachers who had more chances to co-teach with mentor teachers and engage with diverse children during their field experiences indicated greater levels of confidence in their capacity to apply inclusive practices, as shown by an analysis of the data from practicum observation.

They noted that the co-teaching and inclusive education practices that they had acquired in their coursework enabled them to implement and reflect on such tactics and that the hands-on experiences gave them a greater understanding of the

complexity and issues that are associated with inclusive classrooms. According to the findings of interviews, pre-service teachers placed high importance on their practicum experiences as a critical element of their pre-service teacher preparation program. This was because their practicum experiences offered them genuine chances to improve their teaching abilities as well as their familiarity with inclusive education.

8.4. Professional Development and Support

To successfully adopt co-teaching and inclusive education methods, the results of this research highlighted the significance of continued professional development and support within pre-service teacher training programs. Seventy percent of the pre-service teachers said that taking part in professional development workshops on co-teaching and inclusive education gave them valuable knowledge, strategies, and resources that helped them improve their understanding of co-teaching and inclusive pedagogy and how to implement it.

They expressed how important these chances for professional growth and development were to them as future educators, citing how important it was for their professional progress. The interview data also suggested that teacher educators had a crucial role in providing pre-service teachers with continual assistance throughout their program. They noted that receiving consistent feedback, direction, and mentorship from more experienced instructors assisted them in improving their co-teaching abilities as well as their inclusive pedagogy. In addition, pre-service teachers have emphasized the need for ongoing support and chances for professional development after they graduate from their teacher preparation program. This support and development might come in the form of follow-up seminars, coaching, or mentoring opportunities. They anticipated that having access to continual assistance would increase their capacity to successfully adopt co-teaching and inclusive education techniques in the classrooms in which they would later teach.

The findings of this study indicated that pre-service teacher preparation programs that include collaborative learning, inclusive pedagogy, field experience, and ongoing professional development and support are effective in preparing pre-service teachers to implement co-teaching and inclusive education practices. The findings were based on an analysis of the data that was collected from the participants in the study. These results not only give a complete knowledge of the primary themes that emerged from the data, but they also show the relevance of these themes in creating pre-service teacher training programs for inclusive education. These results provide an important contribution to the current body of research on pre-service teacher preparation and co-teaching, and they offer insightful information to teacher educators, legislators, and other stakeholders interested in inclusive education practices.

9. Discussion

The results of this research provide fresh insight into the efficiency of pre-service teacher preparation programs in educating future educators to engage in practices of co-teaching and inclusive education. The findings shed light on the important part that inclusive pedagogy, collaborative learning, field experience, and continuous professional development and support play in the process of preparing pre-service teachers for inclusive education and co-teaching.

According to the results, pre-service teachers who engaged in collaborative learning experiences such as co-teaching reported having improved their grasp of co-teaching models, improved their pedagogical abilities, and boosted their confidence in their ability to work with learners from a variety of backgrounds. This implies that collaborative learning opportunities during pre-service teacher education programs may successfully prepare future teachers to work in inclusive classrooms by providing them with real-world experiences and chances to practice inclusive pedagogy. This can be accomplished by giving them real-world experiences and opportunities to collaborate with students from a variety of backgrounds.

The findings also shed light on the necessity of inclusive pedagogy in the training of future teachers. Pre-service teachers who indicated better levels of preparedness to use inclusive practices in their future classrooms were those who got formal instruction and training in inclusive pedagogy. This highlights the importance of pre-service teacher education programs prioritizing inclusive pedagogy as a fundamental component and providing students with the information, tools, and resources required to establish inclusive learning environments for all children.

The results put an even greater emphasis on the significance of gaining field experience throughout the pre-service teacher training process. Pre-service teachers who participated in field activities such as student teaching and practicum reported having a greater knowledge of the problems and possibilities presented by co-teaching and inclusive education in actual classroom environments. This shows that pre-service teachers benefit greatly from participating in field activities as a means of bridging the gap between theory and practice and preparing them for the challenges of co-teaching and inclusive education in real teaching environments.

The findings also highlight how important it is for pre-service teachers to have access to continued professional development and support throughout their careers. Teachers-to-be who received constant support, feedback, and

mentorship from experienced teachers throughout their program and beyond reported greater levels of confidence and preparedness to apply co-teaching and inclusive practices in their future classrooms. This was especially true for pre-service teachers who were mentored by more than one instructor. This underscores the need for pre-service teachers to be provided with continuous professional development opportunities and support networks by teacher education programs, even after they have graduated, to guarantee their continued growth and success as inclusive educators.

Numerous studies [20, 21, 22, 23] have underscored the importance of utilizing cooperative learning as a means of preparing prospective educators for the task of teaching in inclusive classroom settings. The rationale behind the employment of collaborative learning lies in its potential to enable prospective educators to interact with learners from diverse backgrounds, apply inclusive pedagogical approaches, and introspect on their instructional methodologies within a secure and supportive environment [24, 25, 26]. According to Legrain et al [27], the efficacy of collaborative learning experiences may be contingent upon the caliber of collaboration and level of support provided to pre-service educators. As such, this factor should be duly considered.

The significance of pre-service teacher education programs in promoting inclusive pedagogy has been recognized by scholars such as Sokal et al [28] and Walton & Rusznyak [29]. Inclusive pedagogy necessitates that pre-service teachers possess a comprehensive understanding of diversity, equality, and inclusion [30, 31] to proficiently execute their teaching duties. This involves creating classroom environments that cater to the requirements and strengths of all students. The findings of recent research indicate that a significant number of teacher education programs provide only rudimentary coverage of this matter [32]. Therefore, it is imperative to ensure that prospective teachers undergo comprehensive instruction in inclusive pedagogy.

Field experience is a valuable opportunity for pre-service teachers to apply their theoretical knowledge in a practical context [33, 34]. The lack of preparedness reported by pre-service teachers in dealing with classroom issues underscores the importance of providing them with adequate support during their field experiences, as highlighted by Nganga et al [35] and Jarrah [36]. Fuertes-Camacho et al [37] have identified mentoring, coaching, and reflective practice as some of the methods that professionals may employ to offer assistance.

It is imperative to ensure that upcoming educators are equipped to maintain and enhance their expertise and understanding throughout their professional lives. This can be achieved by offering them continuous professional development and support [38, 39]. The provision of aid through professional learning communities, coaching, and mentorship is a form of support [40]. Therefore, opportunities must be tailored to cater to the specific needs of each pre-service teacher.

9.1. The Implication of the Study

The results of this investigation emphasize the necessity of incorporating inclusive pedagogy, collaborative learning, field experience, and continuous professional development and support as fundamental components of pre-service teacher education programs. The study highlights the significance of providing prospective educators with the chance to engage in co-teaching and collaborative practices with students from diverse backgrounds within the educational setting.

The study emphasizes the necessity of acquiring practical experience in the field to equip prospective educators with the skills and knowledge necessary to navigate the challenges of co-teaching and inclusive education in the classroom. Sustained professional development and support networks from teacher education programs are crucial for pre-service teachers to foster their inclusive teaching skills and ensure their sustained growth and success as educators upon entering the workforce.

The results of the study indicate that teacher education programs should consider adopting a collaborative and inclusive approach to adequately equip teachers to address the diverse needs of their students. The prioritization of inclusive pedagogy, collaborative learning, field experience, and continuous professional development and support can enhance the ability of pre-service teachers to cultivate an inclusive learning environment that accommodates the needs of all students, including those from diverse backgrounds and with diverse learning needs.

10. Conclusion

The results of this research, taken as a whole, call into question established ideas about how teachers should be prepared and bring attention to the critical need of developing new and inclusive methods for pre-service teacher education. To properly prepare future educators for co-teaching and inclusive education practices, the findings of the research give useful insights that may be used by teacher educators, legislators, and other stakeholders in the process of redesigning and enhancing pre-service teacher preparation programs. These ground-breaking results have important implications for the area of teacher education and add to the current literature by giving a complete knowledge of the essential elements that form excellent pre-service teacher preparation programs for inclusive education. Additionally, these findings make a substantial contribution to the field of education in general.

11. Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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تقرير بحث رقم (2)

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Legislations Governing E-learning in Jordanian Higher Education Institutions: An Analytical Study

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Abstract

This study aims to analyze the legislation governing e-learning in Jordanian higher education institutions through an analytical, descriptive approach to the contents of the Jordanian legislative texts related to e-learning. This comes to determine the concept and types of e-learning, determine the positive and negative points of the process of employing e-learning in university education and determine the nature of the electronic content, its necessary teaching methods, and the nature of the technical and technological infrastructure necessary for e-learning. E-learning is distinguished by its flexibility; it provides an attractive learning environment, takes into account individual differences, and provides students with many research and scientific skills. On the other hand, it increased social inequality and the inability of parents to follow up on their children due to their electronic illiteracy. E-learning also reduces the opportunities for face-to-face interaction since students are affected by body language during the explanation. The study recommended the need to hold training courses for teachers and students and reconsider the methods of evaluating teachers depending on the quality of employing the electronic methods in their teaching.

Keywords: e-learning, legislation, higher education

1. Introduction

The rapid technological developments affected the speed and power of communication means in sending and receiving information, and its increasing ability to link time with space for educational purposes. This shift imposed various challenges on educational institutions, which responded to the changing needs of society, and supplies the requirements of development plans with qualified competencies capable of facing life and global competition. It provides the community with qualified and trained human energies that possess thinking minds and creative capabilities in their work (Singh et al., 2020).

The royal vision in Jordan gave attention to the future aspirations for education in the seventh discussion paper (Ibn Al-Hussein, 2017), which dictated that most of its interest is in developing the educational process system, to keep pace with modern technological changes, where it no longer became a secret to anyone that we live in an era whose pace has accelerated and that we will not be

able to keep pace with the challenges. Therefore, the Ministry of Higher Education was aware of this matter and started moving towards e-learning to implement it in higher education institutions to improve their level of performance and the quality of their outputs, increase their global competitiveness, to keep abreast of developments in information and communication technology, and to integrate them into teaching and research" (Higher Education Law, 2018, article: 3/a/j). These objectives were done by "creating a smart and attractive educational investment environment, and following the e-learning system" (Higher Education Law, 2018, Article: 6/a/5), which called on the Ministry of Higher Education to issue legislation related to e-learning that has become the most important tool for learning and an essential part of the education system that currently exists in higher education institutions. It also became a new way to bring about change in the reality of education within higher education institutions to avoid pitfalls that may hinder its success when applied (Mabrouk & Al-Madhoun, 2022).

The e-learning integration system for the year (2021) clarified the types of e-learning as e-learning, synchronous and asynchronous e-learning, and blended e-learning. The percentage of integration in teaching hours was determined for each type according to the specialization area, technical, health and medical, provided that "the percentages prescribed for subject levels in academic program plans are distributed over all years of study (The Bylaws for integrating e-learning in higher education institutions, 2021, article: 3/a/4). Higher education institutions are committed to the purpose of implementing e-learning by providing "wired and wireless Internet service within its campus in a continuous manner with a high degree of quality and providing a subscription for the software needed to support the process of integrating e-learning into it, and providing integrated protection systems for all e-learning systems and its virtual platforms" (Regulations for the integration of e-learning in higher education institutions, 2021, Article: 6/b, c and d).

E-learning contributed "to the learner's possession of many skills that he did not obtain in traditional education and provided the learner with many opportunities to join various training courses" (Singh, 2020). In addition, "students who used e-learning preferred this type of learning because of the flexibility they get in the process of choosing between attending e-learning with the teacher or learning through self-study." (Luaran et al., 2014). E-learning has provided interesting scientific material for learners, helped them invest their spare time by implementing useful activities, increased communication skills between learners and their teachers, and was distinguished by its application flexibility that combines self-learning, cooperative learning, and participatory learning. It is also available at any time and place, reduces the cost of material and effort for the learners, and provided the opportunity to communicate with multiple places to obtain knowledge, thus contributing to improving the quality of learning and teaching (Al Rawashdeh et al., 2021).

In addition, e-learning achieved quality standards to a large extent from the point of view of students (Fatoum et al., 2022) because when students participate in the learning process to a large extent, they bear responsibility. E-learning also saves time and effort and is an attractive learning environment, with scientific material that is not limited to a time during the week, and not relying on actual attendance (Hassan, 2017). It also provides multiple ways to evaluate students, enhance their self-education, and increase their academic achievement (Al-Abbasi & Al-Mazah, 2019). On the other hand, one of the disadvantages of using e-learning according to the results of scientific studies is that it is not suitable for teaching some courses, such as indexing and classification materials, and field training, because they need a conventional interaction (Shehata et al., 2022).

E-learning also reduces the opportunities for direct communication between the teacher and the learners themselves, as it reduces the motivation of the learner if he finds it difficult to absorb or obtain electronic content (Wolniak & Stecula, 2022). In addition, e-learning has reduced the opportunities for face-to-face interaction between the teacher and the learners. (Luaran et al., 2014). Poor design of educational material content leads to weak interaction between students and teachers, and students' inability to access Internet platforms due to technical problems related to poor communication (Sarker et al., 2019). In addition, the use of e-learning has increased social inequality among learners, due to the lack of educational means and methodological efficiency using e-learning.

(Kassymova et al., 2021). It also increased social isolation, as a result of sitting in front of technical means for a long time, and the inability of parents to follow up on their children electronically, due to their electronic illiteracy (Al Rawashdeh et al., 2021).

1.1 Problem Statement

E-learning has become one of the issues that preoccupy those interested in the field of the teaching and learning process because it has become different from what was prevalent in the traditional education process. This process of transformation requires conscious preparation and the provision of an environment rich in human, material, infrastructure, and technological data (Al-Salmi, 2020) to contribute to achieving the educational goals sought by higher education institutions. The Ministry seeks to employ e-learning in its forms and types, study plans, and academic and knowledge programs so that students acquire modern technical, scientific, and technological skills. All these could be achieved through an educational environment rich in various knowledge, which allows the learner to be self-reliant in his learning, and to find solutions to cognitive and human problems in cooperation, based on dialogue and discussion of others, in a flexible and open-minded manner.

Therefore, this study aimed at revealing what was included in the texts of legislation in Jordanian higher education institutions on the process of e-learning to analyze it, stand on its concept and types, and extrapolate the pros and cons of e-learning (Mahdi, 2022). Due to the importance of clarifying these concepts in e-learning, the contents of the legislative texts related to e-learning in Jordanian higher education institutions were surveyed and clarified in an organized manner. They form legal rules that are consistent with each other and enable the implementers of e-learning and the beneficiaries of it to possess modern scientific, practical, cognitive, and administrative skills and competencies that help them to employ them effectively. Therefore, the problem of the study is defined by the following questions:

1. What is the concept of e-learning?
2. What are the types of e-learning?
3. What are the main aspects of the e-learning system, its technologies, and its environment from an educational perspective?
4. What are the advantages and disadvantages of e-learning?

1.2 Significance of the study

This study is useful in spreading the culture of knowledge of the legislation regulating e-learning and raising awareness of its implications for the implementation of its provisions by faculty members and students in Jordanian higher education institutions. Implementing these legislations in a real and not formal way, through the use of electronic technologies in a networked learning environment, to improve the level of performance and raise the efficiency of the educational process, to keep pace with technological educational progress. The results of this study help in developing e-learning legislation with its various axes to achieve a competitive advantage. The study constitutes theoretical literature for those interested in e-learning and its researchers. The results help in building innovative technical concepts for e-learning in educational institutions and identifying the positive and negative effects resulting from the use of e-learning.

1.3 Limitations of the study

This study was limited to analyzing the texts of the legislation governing e-learning in Jordanian higher education institutions from 2018 to 2022.

2. Methodology

The study relied on the analytical descriptive approach to the contents of the legislation texts related to e-learning in Jordanian higher education institutions, to analyze, clarify, and extrapolate them to deduce the positives and negatives resulting from the process of employing e-learning and integrating it with traditional learning.

2.1 Population and Sample

The study population consisted of all the contents of the official legislative texts related to e-learning contained in the Jordanian legislation. These laws include the Higher Education Law No. (17) for the year 2018, the e-learning integration system No. (69) for the year 2021, the regulations for the integration of e-learning in higher education institutions for the year 2021, and the regulations for the general accreditation of universities for the year 2021 AD. The legislative texts also include the regulations for monitoring the extent to which higher education institutions adhere to legislation related to higher education and accreditation standards for the year 2021, regulations for special accreditation for postgraduate programs in universities and university colleges for the year 2021, regulations for special accreditation for the Department of Basic Humanities, and the Department of Scientific Basic Sciences for the year 2021. The laws under study also included the foundations for the special accreditation of full-distance e-learning programs in Jordanian higher education institutions for the year 2022 and the foundations for integrating e-learning (in its two forms: full-distance electronic and integrated) in Jordanian higher education institutions for the year 2022.

2.2 Research Instrument

The Jordanian official legislation has been studied, and the texts related to e-learning, its types, and aspects, have been extracted from it. These legislations have been organized in two matrices to determine the type of legislation that regulates e-learning and its types in Jordanian higher education institutions so that these two matrices are a starting point for determining the types of paragraphs of the study tool as shown in Table (1) and Table (2).

Table 1. E-learning legislation and its types in the Jordanian legislation

E-learning legislation and its types												
Type one		Type two					Type three			Type four		Type five
Synchronous e-learning is implemented through:		Asynchronous e-learning is "indirect", and is implemented through:					Full distance e-learning, implemented through:			Blended learning, implemented through:		Type six
The video lecture	Voice/telephonic communication	Written communication	text chat	forums	E-mail	Voice chat	synchronous learning	Asynchronous learning	face-to-face learning	Asynchronous learning	face-to-face learning	Inverted learning

Table 2. The aspects of e-learning mentioned in the Jordanian legislation

E-learning aspects legislation													
Aspect one					Aspect two					Aspect three			Aspect four
e-learning environment					Academic programmers and subject plans					Training and rehabilitation			Electronic governance
Provide an electronic system/platform	website	Internet	Providing integrated security systems	Software - hardware and teaching aids	educational content	Evaluation	teaching methods	programs' plans	courses' plans	Qualifying academic staff	Qualification of administrative staff	Rehabilitation of students	Guidance leaflets

3. Results and Discussion

3.1 First: the concept of e-learning

E-learning is one of the most important areas of learning that have been affected by the developments of information technology and the changes that have taken place in learning theories: behavioural, cognitive, and constructivist thinking (Mahdi, 2022). In its implementation, e-learning depends on the use of electronic media in the process of communication, receiving information, acquiring skills, and interaction between the learner and the teacher, and between the learner and the educational institution. It is a paperless work system that enables the learner to obtain knowledge, process information, understand it, and rephrase it himself, in addition to acquiring digital skills, lifelong learning, self-management, critical and creative thinking, decision-making and problem-solving, teamwork, and the possession of moral and human values (Hassan & Muhammad, 2021).

E-learning depends on the use of Internet technology, and programs for managing educational content with cognitive tools that control the design, implementation, evaluation, and management of the teaching and learning process (Asiri & Lemhia, 2011). It is available to all age groups wishing to continue education and to obtain modern electronic knowledge content that meets the needs of learners and their abilities and is characterized by provoking their motivation to learn and developing in them the skill of criticism, creativity and the ability to solving problems, and the ability to communicate with their teachers freely without temporal or spatial restrictions (Hashem, 2017). Therefore, e-learning was defined as "education that takes place using information technology and its platforms (the system for Integrating e-learning in higher education institutions, 2021, subject: 2). In addition, it is "an innovative method in facilitated learning environments for learning, which is its centre. It is also characterized by good design and interaction, for any individual, anywhere and at any time, to benefit from the resources and characteristics available in numerical digital technologies (Al-asiri & Al-Mahya, 2011). It is also a "modern method of education, in which modern means of communication are employed, whether remote communication or in the classroom" (Hashem, 2017, 14).

3.2 Second: Types of E-learning

E-learning can be classified according to several criteria. The first type is synchronous e-learning, which is learning that employs Internet technology to teach in the traditional concept, in which the teacher and the learner meet at the same time, and they communicate through text and audio conversations, or video and audio conferencing with visual participation on the screen. The teacher provides education, presentations, and explanations of the subject "through interactive and participatory virtual meetings between the teacher and the students directly through the virtual educational platform approved by the Authority to implement e-learning (the bylaws for integrating e-learning in higher education institutions, 2021, Article: 2). It includes explaining a new educational material to students, discussing questions and answers from students and the teacher, and watching short presentations provided by one of the parties to the education process, in addition to discussions and short exercises (Regulations for integrating e-learning in higher education institutions, 2021, Article 5/b). This category includes several tools and techniques, such as video/electronic lectures, voice/telephonic communication, written communication, and written chat (Mahdi, 2022; Fathya, 2020).

The second type is asynchronous e-learning, which is communication between the two learning parties in the form of activities. It takes place at different times and from different places, and it does not require presence in real time for learning. It is implemented through educational activities and tasks carried out by students through the virtual platform without a direct meeting with the subject teacher (e-learning integration system In higher education institutions, 2021, subject: 2). The teacher

places the references and evaluation mechanism with the course teaching plan on the educational website, so that the learner enters the website whenever he wants, and follows the teacher's instructions in completing the learning assignments, without simultaneous contact with the teacher (Al-asiri & Al-Mahya, 2011).

Asynchronous e-learning is implemented with the following tools. E-mail is used to exchange information, opinions, discussions, and messages collectively with the teacher and between the students, and the possibility of linking additional files to them, to be sent and to be answered by both parties in writing. Forums are also used as tools of communication and participation via the Internet, between a group of students, who have common interests in a specific discipline and are used to express opinions, and inquiries, or carry out joint tasks, activities, or educational projects (Mahdi, 2022). Telephonic voice communication is also another tool, where one-on-one or group voice chats on a topic are done via the virtual platform.

The third type of e-learning is complete distant e-learning, which is the learning that is implemented entirely using the virtual platform, between the teacher and the learner and they are in two different places, in both synchronous and asynchronous forms (The bylaws for Integration of E-Learning in Higher Education Institutions, 2021, Article: 2). Electronic communication tools are used to enhance learner motivation and increase the quality of the education process. (Al-asiri & Al Mohya, 2011).

The fourth type of e-learning is partial/blended e-learning, which is the learning that mixes one subject between face-to-face learning and asynchronous e-learning (the bylaws for Integrating e-learning in higher education institutions, 2021, article: 2). This diversity comes together to create an intellectually strong learning environment. It is also called blended learning, hybrid learning, integrated learning, and dual learning (Mahdi, 2022). Blended e-learning mixes traditional learning in the classroom face-to-face with a specific percentage of the learning time and electronic communication systems via the Internet to perform various tasks in the form of activities. It includes learning tools, such as Internet-based courses and learning courses self-management, learning systems management, and instant virtual collaborative learning software (Al-asiri & Al-Muhaya, 2011).

The fifth type is face-to-face learning, which is learning with electronic dimensions, and it is an important education for many courses whose nature requires complete front-facing learning (Executive Action Plan for the Integration of E-Learning, 2021). Finally, the sixth type of e-learning is inverted e-learning, which is learning through which the lecture is recorded by the subject teacher, and uploaded to the virtual platform, for the students to watch in their free time, and answer the questions posed by the teacher, to discuss during the time of synchronous e-learning (Foundations of special accreditation for e-learning programs, 2022: article: 2). It seeks to employ e-learning materials and environments in a way that enables the teacher to prepare electronic lectures in the form of video clips, audio files, projects, or exercises for students to see before they attend educational institutions, to be discussed between the teacher and students, face to face for a specific time. The role of teacher becomes the transmitter of knowledge, an evaluator of the level of students, a supervisor of students' participation and interactions, and a supporter and facilitator for those who fail (Mahdi, 2022).

3.3 The main aspects of the e-learning system

The effectiveness and quality of e-learning depend on the complete interdependence between the components of its educational system, which relies on "a true integration of the content and the method that suits it, and is facilitated by the presence of experts in the organization process, and teachers who are proficient in teaching methods, using constructive interactive and collaborative methods while providing a new environment for teaching using communication capabilities (Garrison & Anderson, 2006). Therefore, the course elements, including objectives, content, teaching methods, and evaluation, are integrated, in a way that takes into account the principle of individualization of teaching and time during learning. Higher education institutions have been

obliged to provide an integrated system for managing e-learning security and protection, the provision of a technical environment in information technology, and the qualification of academic and administrative staff and students (the bylaws for integrating e-learning in higher education institutions, 2021, Article: 4).

The first aspect is the environment of e-learning, which is an interactive learning environment linked to the computer, which relies on the principle of individualization of learning that focuses on the process of mastering learning individually and independently, according to the learner's abilities and readiness. It is necessary for effective learning, methods of teaching and evaluation, and providing continuous guidance and support to them according to specific, organized, and announced mechanisms so that they can perform what is required (Regulations for Integration of E-learning in Higher Education Institutions, 2021, Article 7/e). The modern e-learning environment also sought to create interaction between the students themselves, with their teachers, and with the technologies and sources of information, so that they could complete the tasks and activities that were assigned to them, by using real tools. For this reason, the texts of the e-learning legislation focused on preparing students with advanced skills in information technology, to live, learn, and work successfully in a technology-rich environment, so that students become proficient in using technology, seeking information, analyzing it, and able to make decisions, communicate, cooperate and share with others, and bear responsibility.

The second aspect is academic programmers and subject plans. The content in the e-learning environment is designed in the form of short paragraphs of information, called educational units, which indicate digital or non-digital information and is coordinated and indexed/facilitated by easy access to the records and data of the educational units (Al-asiri and Al-Mahya, 2011). The process of designing electronic content has a major role in increasing the interaction between students and the content, in addition, the content is adapted in response to students' performance and interests, which encourages them to learn. To achieve these objectives, the legislation obligated higher education institutions to re-review the academic programs, their components and vocabulary, and for all academic degrees to match the requirements of e-learning so that "the file of the academic program's specifications, vision, mission, general description, and educational objectives and outcomes are reviewed to be in line with the requirements of integrating e-learning into higher education institutions and its mechanisms" (the regulations of integrating e-learning in its two forms: full and integrated, 2022. Article: 3).

The fields of knowledge are defined for each e-learning program, so that its content is clear, covering the mental fields, creative abilities, professional competencies, skills, and attitudes that the program aims to provide students with to achieve the desired goals. Therefore, higher education institutions were required to repeat the process of preparing and organizing the course contents within study units according to the approved course outline and compiling them in the electronic course file on the approved virtual platform. The file includes the course plan, a presentation for each lecture, and samples of functions, interactive activities, and pre-questions. The content also includes dimensions for each lecture, recorded videos for each lecture, and periodic reports on the progress of each student in the educational process showing communication between the teacher and students, adding the names of students registered in the course on the platform before the start of teaching, and the subjects of the educational material (the regulations for integrating full distance e-learning in higher educational institutions, 2022. Article: 3/2).

The third aspect of e-learning is training and rehabilitation. Because of the importance of having skills to design the educational content, the legislation required holding training courses to design it and make it available to learners by employing appropriate technologies in the e-learning process, and other courses in designing the subject plan and mechanisms for evaluating and developing the content. In addition, training on the teaching methods used in blended learning curricula and complete e-learning at a distance should be provided along with modern learning methods that enhance effective e-learning, and methods of measurement and evaluation, including electronic methods (Regulations for integrating e-learning in higher education institutions, 2021, Article: 7/b and c). Training teachers and

concerned staff are important in developing basic skills for using computer technologies that support the learning process, employing flipped learning methods, project-based learning, connected learning, or others in implementing the learning process, managing the learning of small and large student groups, and developing the skills of using Learning platforms, evaluation platforms and their characteristics (Regulations for integrating e-learning in higher education institutions, 2021, Article: 7/a). It is also important to hold conferences and seminars by professors and specialists to evaluate the experience of using distance education methods (Ibrahim & Ali, 2022). Moreover, it is important to provide guidelines for teachers and students on the use of complete e-learning at a distance and blended learning and methods of teaching and evaluating them (Regulations for integrating e-learning in higher education institutions, 2021, Article: 10).

Training and rehabilitation are basic for creating the foundations of e-learning to be suitable for serious work and appropriate for its implementation in institutions of higher education. The legislator stipulated in Article "7" of the Academic Work Practice Bylaws for the year 2018, and Article 4 /e of the Academic Work Practice Regulations for the year 2020, that every new faculty member should undertake specialized training courses in the field of using modern teaching methods and information technology, and using collective electronic platforms approved in electronic teaching. The most important strategies in e-learning are variable. Projects, which focus on scientifically applying skills, through the implementation of specific and targeted activities, individually or collectively, and under the supervision of the teacher.

Problem-Solving, which focuses on solving a specific problem to provide opportunities for real meaningful learning, and to develop critical and innovative thinking skills. The case study also focuses on realistic experiences to solve the problem, and compares this solution with the solution in which the case was successfully addressed, so that students acquire problem-solving and decision-making skills. The research focuses on students using the scientific research method properly. Discussion focuses on provoking students' thinking and enhancing their opinions, by asking questions, discussing a problem or topic, and exchanging opinions about it to increase motivation and develop their scientific thinking style, to determine the type of questions during the discussion. Blogs are also used as a tool to focus on continually evaluating students, through what the learners add from the beginning of the course to the end of it (Al-asiri & Al-Mahya, 2011).

On the other hand, the evaluation is considered complementary to the two processes of preparing the content, and the strategies for its implementation, and in a comprehensive manner. Evaluation is one of the indicators of the efficiency of academic programs, study plans, teaching methods, and the scientific and practical empowerment of teachers and students (Hariri, 2008). Due to the importance of the evaluation process, higher education institutions have been required to review the mechanisms and components of evaluation approved in the subjects according to percentages determined according to instructions issued for this purpose (Regulation of the Integration of E-learning in Higher Education Institutions, 2021, Article: 5/a). The higher education institutions reconsider the evaluation components adopted in the full e-learning and blended learning materials so that the evaluation includes the semester work consisting of exams, projects, research, reports, and initiatives, and when determining the number of components in the subject and their weight in terms of the approved hours and their nature.

The fourth and last aspect of e-learning is electronic governance. To properly implement the e-learning system within higher education institutions, the legislation obligated the authorities concerned with e-governance within higher education institutions to follow up the learning, teaching, and evaluation processes on the platforms, for all subjects and courses, and to provide the necessary assistance to overcome challenges and obstacles and to ensure that those concerned to adhere to the systems, instructions and governing foundations. The legislation also focused on providing the units or centres concerned with e-governance with the necessary human and financial resources that enable them to perform their work efficiently and effectively, and that the numbers of students in subjects and divisions are appropriate to the type of learning used, taking into account the nature of the subject and specialization, and as decided by the authorities (Regulation of the

Integration of E-learning in Higher Education Institutions, 2021, Article: 11). For the e-learning systems to be integrated among themselves and to expand free e-learning programs for life, and expansion of e-learning programs on demand (Mabrouk and Al-Madhoun, 2022), it is vital to develop the necessary policies, legislation, and procedures to implement effective e-learning in all higher education institutions to be in line with e-learning requirements and with the e-learning legislation issued by the Jordanian Ministry of Higher Education.

3.4 *The advantages and disadvantages of e-learning*

3.4.1 *Advantages*

Students with disabilities or special needs shall be given their right to education. E-learning makes it easier for students with disabilities to obtain their right to education and enables them to overcome the problems they face during the traditional learning process, including the lack of support services and the necessary equipment for this group in educational buildings (Regulations for integrating e-learning, 2022. Article: 4/4). E-learning also supports the development of various skills and intellectual abilities of students, so that students become possessors of many necessary life skills, such as the skill of learning, dialogue, discussion, analysis, and problem-solving (Singh et al., 2022). The flexibility of e-learning, for the possibility of learning at any time and anywhere, and this matter is useful for people who bear job responsibilities, who cannot go to educational institutions daily, or who prefer learning at specific hours of the day in the morning or evening. It facilitates individual learning and the development of students' intellectual and skill capabilities at the lowest costs (Regulations for integrating e-learning, 2022. Article: 4/2/h).

E-learning provides an attractive work environment, increasing the learner's motivation and self-confidence by expressing his opinion through discussion and dialogue. E-learning eliminated the negative psychological factors that might prevent him from participating, such as fear, hesitation, and anxiety. (Hassan, 2017). E-learning takes into account individual differences and the modification of the teaching method so that the scientific material is given in a manner that suits the learner's capabilities. It also enables the distinguished learner to progress with his studies, without waiting for students who are lower achievers. The lowest-level student is given enough time to raise his level, according to his abilities and the effort expected from the learner (Bassiouny, 2007). E-learning creates ease of communication between students and their teachers. It enables the learner to send his inquiries and questions to the teacher without delay through the virtual platform, and without adhering to a previous appointment or specific office hours. This feature benefited the learner by obtaining feedback directly from the teacher. (Al-Abbasi & Al Mazah, 2019).

E-learning reduces the financial burdens on the learner, who is sometimes forced to change his place of residence to match the location of his university (Hassan, 2017). E-learning is characterized as a flexible and modern educational system, based on scientific and technological methods capable of serving everyone at the lowest costs (Mabrouk & Al-Madhoun, 2022). E-learning provides multiple methods for evaluating students and does not depend on a single method such as exams. (Al-Abbasi & Al-Muzah, 2019).

3.4.2 *Disadvantages*

E-learning is not suitable for teaching some courses that require interaction between the students and the teacher, such as field training, indexing, and classification. (Shehata, et al. 2022). E-learning reduces the opportunities for face-to-face interaction between the teacher and the learner, which affects the acquisition of many educational and social values, which are formed by the learner from visual and physical contact with the teacher, and which affect the modification or change of his negative attitudes through the body language used by the teacher. While using e-learning, the learner feels lost, confused, or isolated because he lost direct vision of the model teacher and role model

(Luaran et al., 2014). E-learning has increased social inequality, due to poor financial capabilities, which affected the inability to provide modern technological devices to their children, to help them obtain scientific knowledge. (Kassymova et al., 2021). The continuous use of modern technology dominates the learner, so he spends a lot of time searching and searching for information, and this matter kept him away from using the main books and various references (Fathia, 2021).

One of the disadvantages of e-learning is parents' inability to follow up on their children's educational attainment, due to their electronic illiteracy, which contributed to increasing social isolation and affected social relations in general (Al Rawashdeh et al., 2021). The existence of technical problems related to the Internet affected access to virtual educational platforms. (Mahmud & Sarker, 2019). Teachers' poor possession of the skills of preparing and designing electronic content and modern teaching methods, in line with accreditation and quality standards at different levels, affected students' interaction opportunities with their teachers. The number of students in e-learning was not specified, and the numbers in the academic disciplines remained as the education was in the public domain, and this affects the quality of following up on the activities of the students assigned to them. (According to Article 11 of the instructions for integrating learning, integrating e-learning in higher education institutions for the year 2021). The inappropriateness of teaching methods in e-learning for teaching some subjects, especially practical subjects (Nahid & Khalsa, 2022).

4. Conclusion

Jordanian legislation throughout its long history reflected the extent of its interest in education, which gradually increased during the current period, in line with the rapid technical and technological developments. This is what the Jordanian legislation has taken into account in the continuity of the amendment and development of the educational legislative contents, to adopt e-learning of all kinds, in institutions of higher education, to create an advanced and modern education that seeks to prepare the learner, and to be a global human being, open to other cultures and civilizations, criticizing, scrutinizing and analyzing them.

Therefore, legislation constitutes a safety valve and continuous insurance imposed by religious morals, social and national responsibility towards the education process, the pillar of national construction, the pillar of human growth, and the change-maker. It constitutes an infrastructure on which the current and future e-learning journey is based, which is linked to the development of the learner's personality, and the maximization of his social role. The focus of the legislation is to provide the learner with modern knowledge concepts, and the formation of positive attitudes, in addition to the skills he acquires that combine science and work, theory and application, analysis and planning, openness, creativity, and self-reliance to be able to face all challenges, overcome all obstacles, and participate in the competition of the renaissance and development of societies. Commitment to work with the contents of e-learning legislation improves performance and outputs, fortifies institutions, competes with societies, exalts positives, reduces negatives, overcomes obstacles, and prevents violations from being committed.

5. Recommendations

The study recommends updating/amending e-learning legislation in universities, to be in line with what was mentioned about higher education in this regard. It is important to link the process of accreditation and raising the absorptive capacity in universities, depending on the universities' implementation of all kinds of e-learning legislation, as included in the texts of these legislative articles. The study recommends training teachers in higher education institutions on how to prepare the content of academic courses electronically so that it is compatible with e-learning of its various types. It is also recommended to reconsider the procedures for evaluating teachers in universities, depending on the quality of what is employed by the teacher for e-learning standards in teaching his university courses.


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تقرير بحث رقم (3)

Availability of Voice-Recognition Devices to Support Visually Impaired Students in Saudi Arabian Universities.	عنوان البحث
Dr. Yusra Jadallah Abed Khasawneh and Dr. Mohamad Ahmad Saleem Khasawneh	الباحث / الباحثون
الاول	ترتيب الباحث
Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications (JoWUA) . (Index Scopus Q2)	اسم المجلة، وتصنيفها
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2023	سنة النشر
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Availability of Voice-Recognition Devices to Support Visually Impaired Students in Saudi Arabian Universities

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Abstract

This study investigates the availability of instructing visually impaired students utilizing voice-recognition devices in universities in Saudi Arabia. The study also compares the learning encounters of understudies both recently and after the consolidation of such innovation into their instruction. The descriptive approach was utilized for the reason of depiction in this investigation. The study used observation and interviews to collect data, which was gathered from 50 participants. The study found that an unfinished program, a long learning process for the console and images, and a deficiency of qualified computer voice integration are all things that work against the device's guarantee and hold it back from coming to its full potential. Students' degrees of excitement might change anyplace from typical to exceptional. The educational modules will be presented in stages, depending on each student's current skill level. It is accepted that students' ability to form viable utilize of computers within the learning process will proceed to make strides as a result of the expanding number of intercessions that are getting to be open.

Keywords: Talking Computers, Voice-recognition, Visually-impaired Students, Availability.

1 Introduction

Visual impairment may display challenges in numerous ranges of a student's life, counting instruction, social life, mental well-being, physical well-being, relaxation exercises, and career chances, to specify fair many of these ranges. All of these issues got to be expected and arranged for by giving blind students instructive administrations, information, exhortation, and training, in expansion to a different extent of options that are presently accessible. That is to say, extra endeavours inside the setting of coordinates and multidisciplinary techniques are required to avoid the rise, engendering, and irritation of these issues, all of which have the potential to obstruct the development and improvement of a blind student. In other words, the setting of the technique is critical (Kamra et al., 2023).

Instructive challenges for blind students are straightforwardly related to the seriousness of their visual impedance (Alabi & Mutula, 2020). Because of the troubles displayed by these boundaries, it may be challenging for blind students to require a portion of instructive exercises. Therefore, learning models

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and administrations are required to be given in schools for the blind to make it easier for the students to comprehend the instruction that is being given by the educators (Indriastuti et al., 2020). Learners nowadays, have to procure particular abilities in arrange to utilize the browser successfully when browsing the Web. The Web incorporates all sorts of data and information based on the different media components. However, the outwardly impeded learners are denied this very important learning instrument. The outwardly impeded learners are cleared out to memorize utilizing the routine strategy of 'talk and Braille' by the educator.

According to Pollock et al. (2021), there are two particular forms that, when combined, lead to an increment within the levels of information, abilities, states of mind, and capacities held by each person in a society. These forms are the dispersal of instructive administrations and the improvement of human assets through the medium of instruction (Slope & Stewart, 2000). Both of these forms are facilitated by instruction. This can be a kind of social welfare that comprises locks-in exercises with the objectives of re-establishing one's self-esteem and developing potential in expansion to cultivating self-development and the capacity to be part of society. Two extra objectives of this kind of social welfare activity are for the member to work on bettering themselves and expanding their capacity to be associated with other individuals within the community (Rahayu et al., 2021). The arrangement of openings for blind individuals to take part usefully within the enhancement of social welfare and equity in education is essential in case we are to supply them the plausibility to do so, which is an exertion that is deliberate and arranged to set up a learning environment to supply students with the opportunity to effectively create their potential in a way that is useful to both themselves and others (Chime & Silverman, 2019).

When it comes to teaching blind students, certain help, forms, and approaches are required to be included in their education, which must be made accessible to them. It is pivotal that this be worn out to guarantee that blind students will be able to benefit despite the truth that they have a visual impedance (Greenhow & Chapman, 2020). Blind students have a critical drawback in terms of their capacity to memorize. This be done so that blind students can proceed to participate within the learning handle indeed if they don't have to locate by utilizing their other faculties, such as hearing, touch, scent, and taste. This be done so that blind students can proceed to take an interest within the learning handle indeed on the off chance that they don't have located. They will be able to proceed with their development and improvement as a result of this (Sari et al., 2019).

Assistive devices are divided into two types: those that use advanced technology and those that use simple technology. High-tech tools are very advanced and need special training because they might have difficult features like predicting words and recognizing voices. Simple tools are easy to use and don't need much training. Students are considered to be blind in case they have had issues with their vision to the point that they are incapable to form full utilisation of their capacity for seeing (Verkholyak, O., 2021). These students are as it were able to depend on their other faculties, such as their hearing, touch, taste, and scent, to operate appropriately. This is often since they were born without sight. Landau et al. (2009) expressed that blind students have a more troublesome time interfacing with their peers and indeed learning unused things as a result of the challenges that they confront. Blind youths will have a more difficult time learning modern things as a result of this. Subsequently, the lessons that are displayed have to be altered so that they may be adjusted to meet the wants and capabilities of the students who are being prepared.

Scientists have created ways to help people who can't see use a computer. They made tools that let people touch the screen or talk to the computer instead of using their eyes. Some machines can read out what's on the screen, and printers can display things in Braille. These things make it so people don't have

to rely on seeing things as much (Bakouri et al., 2023). Many tools are available for people who cannot see well, to help them do things.

Saudi Arabia started using the Internet in 1999. In 2008, it was ranked 46th in the world for its ability to use the Internet well. Saudi Arabia is spending a lot of money on e-learning. They spent \$125 million on it in 2008. Online learning in Saudi Arabia can help to reduce the number of foreign workers in the country. In 2003, the Saudi government spent 24% of its money on education. Online learning can make teaching and learning better and cheaper for the government. E-learning saves money for schools and colleges. That's why many of them like to use it. This means that Saudi Arabia wants to save money by using technology to improve education. They hope to make this change by the year 2030. The countries in the Gulf, like Saudi Arabia, are not using e-learning as much as they should. This is because it's hard to use techniques that help people learn (Ganesan et al., 2022).

The objective of this study is to investigate the availability of voice-recognition devices in Saudi Arabian Universities to help visually impaired students perform their educational tasks. The study explored whether most universities have specific software and devices to assist blind students on campus.

2 Methods

Research Design

The study utilized both a descriptive and a quantitative approach. This strategy is utilized to supply an outline of the viability of the learning process via voice-recognition devices to blind students, as a result, the objective of this investigation is to display an outline of the efficacy of the learning process. To gather information for this study, the researchers depended on several particular approaches, observations, interviews, and documentation.

Participants

The sample of the study included 50 persons from 8 universities. The participants included students, instructors and administrators.

Data Collection

The study collected data through its instruments, interviews and observations. Both of these approaches are utilized in arrange to gather information and data that commonly back a diagram of the adequacy of the learning process accomplished by blind students through the utilization of computer-mediated talking. The objective of this inquiry is to decide whether or not blind students can benefit from the utilisation of computer-mediated talking.

3 Results

A certain level of challenge is displayed by utilizing voice-recognition devices. For example, for blind individuals to be able to utilize a computer, they must begin with typing orders on the keyboard of the computer, which is a very challenging process if the keyboard does not support the Brille system. The results of the interviews showed the lack of modern devices that help students with visual impairment perform their educational tasks. Most of the interviews mentioned the challenges blind students have with the existing devices and software.

Blind students are incapable to get a handle on a talking computer as well as arithmetic addresses at the same time since the innovation accessible to them is deficient (Moon et al, 2012; Glaser, 2000). Arithmetic courses contain images that cannot be studied by a talking computer (Österholm, 2006). Students who are blind have a gigantic challenge in overcoming this deterrent. Since of this, blind students are incapable to require utilize of their instructive openings to the most extreme degree.

The interviewed individuals showed that such a category of students requires a certain strategy to be adopted by universities. Since each individual has a one-of-a-kind and particular way of learning, it is not hard to create a unified system for voice recognition to assist these students. Usually due to the truth that every single person has their claim one-of-a-kind and one-of-a-kind way of learning. All through the course, it got to be clear that the youthful individuals who were selected for this program were required to go through a wide variety of challenges to understand the data being presented to them. For example, it may be troublesome to get a handle on the information that's advertised; typically, one reason why it is vital to convey the data more than once. However, there are a few students who are enlisted in the program, all a sudden discovered that they are incapable to concentrate or take an interest in instruction for the greatest of one hour at a time.

The instructor needs to make an exertion to incorporate a diversion into the lesson to successfully divert the student's learning on the substance that's being instructed to them. There is too much communication going on in both directions, such as with the young student who is exceptionally hesitant and encompasses an inclination toward a lack of involvement within the classroom. This kind of communication is taking put in every classroom. Students regularly have inconveniences expressing their needs, and they react when the teachers give them amazingly exact directions on how to memorize something modern. According to Barr & Tagg (1995) and Svinicki (1999), students respond when the educator gives them exceptionally clear bearings on how to memorize something modern. Based on the number of events of issues with learning challenges in blind students, it is included on a moderately unassuming scale and may still be controlled inside the system of the family and the university environment.

4 Discussion

The use of voice-recognition devices, such as talking computers helps blind students in doing their education. There are several learning strategies, each of which is adjusted to meet the specific prerequisites of each person, as implied by overcoming the challenge postured by the participants' broadly shifting degrees of scholarly trouble. In doing so, they can meet the wants of all of their students. This incorporates things such as instructive apparatuses that the student truly appreciates utilizing for students who battle to effectively keep up their concentration, as well as contrasts in visually impaired students. They were able to urge data from the web and more readily compose papers without having to hold up for a teacher to help them, which contributed to their expanded level of freedom both recently and after they learnt computer talk. This held genuine both recently and after they could communicate in computer dialect. It is conceivable for blind individuals to sort, indeed create books, and change their work without the help of located individuals.

Several data are made impressively less difficult for individuals who are outwardly impeded by the utilisation of a computer that talks. When a student is taking portion in exercises at school or on campus, they will discover that having a Talking Computer, which in this case comprises a tablet or netbook, is of awesome advantage to them. This disclosure will happen when they realize that having a Talking Computer gives them an advantage over other students. In expansion to working on assignments within the shape of papers or articles, indeed amid examinations, an individual who is blind has the choice of

doing so specifically in a course with other mindful students by asking for a softcopy adaptation of the task from the teachers (Abi Hamid et al., 2020). This choice is accessible in any case whether the individual is working on the task sometime recently or during the exam. This can be something that can be done notwithstanding whether or not the person is truly getting to take the test. The last answers to questions may be given either on a streak drive, in an e-mail, or by combining all of these choices.

One of the most important challenges the interviewed participants mentioned is the availability of software in the Arabic language. Some students argued that they were unable to use some voice-recognition devices because their software does not support the Arabic language, which created a barrier for them to fully understand the content of some lessons. In reply to this challenge, some administrators at universities claimed the lack of funding for updating this software and the lack of experienced personnel to teach students about the use of these devices.

The utilization of a computer framework that is competent in communication for students who are blind is also very useful and beneficial for studying several topics. The discoveries that appeared prior make it very clear that for blind individuals to be able to use a computer, they must be able to freely set up the computer in their possession. This was the conclusion that was arrived at after the truths had been displayed within the way portrayed some time recently. Blind individuals can turn on a computer by basically squeezing the control button that's found on the device, and after that holding up calmly for the computer to bring up the desktop. This strategy is precisely the same as the one that's utilized by located people in general. To begin with, employing a computer, a blind individual is required to turn on the machine and after that enact the screen of the computer program.

The JAWS application for Microsoft Windows and the NVDA program are two illustrations of well-known screen program alternatives. The screen computer program is utilized very frequently. After the screen application has been actuated on the device, it will too be conceivable for blind individuals to utilize the computer in a way that is suitable for them to do so. Blind individuals do not utilize the mouse to explore the computer; or maybe, they utilize the console to execute information utilizing short-cut features or key combinations. Blind people are incapable to explore a computer by utilizing the mouse in any capacity (Levin, et al., 2000; Balan et al., 2015). When wrapped up employing a computer, understudies have the choice of turning it off by executing a command that's an easy route. This may be done by utilizing the computer voice command.

The help in browsing provided by a computer that can discuss with the individual utilizing it is something unique. The introduction of the information makes it liberally apparent that those who are blind may have the opportunity to browse freely by perusing what is appeared on the screen of a computer given the machine in address is outfitted with a chunk of a program known as a screen browser. Blind people who are examined with the help of a talking computer have a simpler time comprehending the data included within the content they are perusing, which empowers them to improve their reading capacities (Raskind & Higgins, 1998). Agreeing with Alvermann, (2001) Perusing employing a talking computer makes it less likely that blind people would battle with perusing. Usually, since the computer peruses out loud to them.

The capacity to sort on a screen is something that people who are blind will get to learn for them to be able to total their schoolwork and other sorts of printed material (Colwell et al., 2002). This includes information on the area and work of each button on the screen, as well as the authority of the 10-finger writing method. When editing or designing reports for individuals with visual impairments, they utilize the SorchCut apparatus that's included in Microsoft Word. Getting to the web using a talking computer instead of through a conventional web browser. According to Vtyurina et al (2019) and Dosono et al (2015), individuals who are blind or outwardly impeded can openly browse the web much appreciated

a program called a screen browser, which has the control of perusing out loud screen shows unmistakable on websites. This data may be seen within the information that was displayed sometime recently. Blind students can carry out any action of their choosing on the web, such as looking for and transmitting data, whether it be perusing the news, sending email, or communicating through social media (Vicente & López, 2010). Freitas & Kouroupetroglou (2008) stated that blind students are moreover able to get to all of the substance that is accessible on the web. This was all done to guarantee that blind individuals can keep up with the huge breakthroughs that are being made in both innovative and communication areas in this time of digitalization.

5 Conclusion

This study aimed at investigating the availability of voice-recognition devices and media to help visually impaired students perform their educational tasks. The study showed that voice-recognition devices are either unavailable to blind students or they lack update. The results showed reluctance from the part of blind students to use the existing devices. However, many students mentioned that having computers is helpful in their studies. Usually, since it makes the method of learning less difficult for them, but at the same time, it requires professional updates and training on how to use these devices and how to keep up with their updates. The students mentioned that voice-recognition devices help them in learning as well as in bringing an extraordinary excitement to keep learning and attempting modern things through the direction given by friends, teachers, and what researchers energize learners, how to utilize a talking computer. This is often why they need to have both of these qualities. Talking computers will be accessible for utilize or get to understudies, and they will be able to utilize them concurring to their needs, in specific as a medium for instructive purposes. This was not as it was replied to that address, but it moreover provided an arrangement to the detailing of the issue that the ponder was looking into.

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Authors Biography




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تقرير بحث رقم (4)

An examination of teacher collaboration in professional learning communities and collaborative teaching practices.	عنوان البحث
Yusra Jadallah Abed Khasawneh¹, Raghad Alsarayreh², Adnan Ahmad Al Ajlouni³ Haitham Mustafa Eyadat⁴, Mohammad Nayef Ayasrah⁵, Mohamad Ahmad Saleem Khasawneh⁶.	الباحث / الباحثون
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An examination of teacher collaboration in professional learning communities and collaborative teaching practices

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Abstract

The present study aims to examine the influence of teacher collaboration within professional learning communities (PLCs) and collaborative teaching practices on both the professional growth and academic achievement of students. The study employed a mixed-methods research design that incorporated both qualitative and quantitative research methodologies. This research comprises both survey responses and interview transcripts obtained from K-12 educators who are currently engaged in Professional Learning Communities (PLCs) or collaborative teaching methodologies. The findings of this study have the potential to enhance the existing literature on teacher collaboration and furnish educators, policymakers, and researchers with valuable perspectives to steer optimal strategies for promoting effective teacher collaboration in Professional Learning Communities (PLCs) and collaborative teaching approaches. The objective of the research is to investigate the influence of teacher collaboration within Professional Learning Communities (PLCs) and collaborative teaching practices on the development of professional skills and academic achievements of students. The results of this study underscore the importance of recognizing the advantageous effects that collaborative teaching methodologies can have on the academic achievements of students. This necessitates the provision of adequate time for collaborative activities, encouraging supportive leadership within educational institutions, and allocating sufficient resources for collaboration.

Keywords: Collaboration, Learning community, Professional learning, Teachers, Teaching practices.

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Contribution of this paper to the literature

This study contributes to investigating the effect that the participation of educators in professional learning communities (PLCs) and the adoption of collaborative pedagogical approaches have on the growth of teaching expertise as well as the accomplishments of students.

1. Introduction

In recent years, there has been a rising realization of the relevance of teacher cooperation in improving instructional methods and promoting student results. This recognition has been particularly prevalent in the United States. The term "Professional Learning Communities," or PLCs for short, has gained popularity in recent years as a way to refer to collaborative structures inside schools that encourage teacher teamwork and promote ongoing professional education. PLCs are often characterized by a culture of collaboration, in which instructors work together to share their knowledge, participate in joint planning, evaluate student data, and reflect on their practices.

Collaborative teaching approaches, such as co-teaching, team teaching, or peer coaching, highlight the significance of instructors working together to plan and carry out education (Carty & Marie Farrell, 2018). These activities may sometimes be referred to as "co-teaching." These techniques make it possible for educators to share their knowledge and expertise, collaborate on the development of classes, and provide individualized help to students whose requirements vary greatly.

The research that has been done so far has demonstrated that successful cooperation between teachers may lead to better pedagogical practices, higher student engagement, and improved academic performance among students. However, there are also problems connected with teacher cooperation, such as time limits, diverse viewpoints, and various degrees of preparation among instructors. These challenges may make it difficult for teachers to work together effectively (Riddell & Niño-Zarazúa, 2016). Therefore, there is a need for a comprehensive assessment of teacher cooperation in PLCs and collaborative teaching techniques to better understand the influence that these factors have on professional growth and the results for students (Prenger, Poortman, & Handelzalts, 2017).

The study was carried out within the larger context of the contemporary educational environment, taking into consideration aspects such as school culture, leadership, and teacher qualities that have the potential to impact the efficacy of teacher cooperation. The results of this study may contribute to the current body of research on teacher collaboration and give educators, policymakers, and researchers useful insights that can guide best practices in encouraging successful teacher collaboration in professional learning communities (PLCs) and collaborative teaching methods.

1.1. Problem Statement

Even though it is well acknowledged that teacher cooperation in professional learning communities (PLCs) and collaborative teaching techniques are very important, there is a pressing need for more research into how these factors affect professional growth and the consequences for students. Even though previous studies have shown that there are advantages to teacher cooperation, there are also problems that need to be addressed. In addition, there is a lack of clarity on the particular characteristics that enable or inhibit successful teacher cooperation in PLCs and collaborative teaching methods (Alkhawaldeh & Khasawneh, 2022). This is a problem since several factors may have either of these effects. As a result, there is a pressing need for an exhaustive study to be conducted to get a deeper comprehension of the function that teacher cooperation plays in the educational setting, as well as its influence on the progression of professional growth and the consequences for students.

1.2. Research Objectives

The primary purpose of this research is to investigate the effect that the participation of educators in professional learning communities (PLCs) and the adoption of collaborative pedagogical approaches have on the growth of teaching expertise as well as the accomplishments of students. The purpose of the project is to educate educational practice and policy by investigating the advantages of teacher cooperation as well as the obstacles that it presents and the variables that determine its efficacy.

1.3. Research Questions

What is the impact of teacher collaboration in professional learning communities (PLCs) and collaborative teaching practices on professional development and student outcomes?

2. Literature Review

Collaboration among educators is receiving a growing amount of attention in the area of education as a strategy for improving teaching methods and increasing the quality of results for students. It is widely

acknowledged that successful strategies that foster teacher cooperation, resulting in improvements in both teaching and learning, include both Professional Learning Communities (PLCs) and collaborative teaching techniques.

The effects of teacher cooperation in professional learning communities (PLCs) on professional growth and student outcomes have been the subject of several kinds of research. For instance, [Vescio, Ross, and Adams \(2008\)](#) did a meta-analysis of 103 research and showed that teacher cooperation in PLCs significantly influenced instructors' instructional practices, student success, and student engagement. These findings can be found in the article "Teacher Collaboration in PLCs." They underlined the significance of working together as a means of developing a culture that is supportive of professionals and supports continual professional development.

In addition, studies have indicated that collaborative teaching strategies like co-teaching, team teaching, or peer coaching may have a favourable impact on students' results when compared to traditional teaching methods. For example, a comprehensive evaluation of the literature on co-teaching discovered that it may result in enhanced academic achievement, greater student involvement, and favourable social relationships among students ([Strogilos & Stefanidis, 2015](#)). It has been shown that collaborative teaching approaches improve the instructional abilities of instructors, provide focused help to students who have a variety of needs, and create learning environments that are inclusive of all students.

In addition, a variety of elements that impact the efficiency of teacher cooperation have been uncovered during research. [Popp and Goldman \(2016\)](#), for instance, defined six essential characteristics of productive PLCs. These characteristics include a common vision, supportive leadership, a culture of cooperation, collective learning, shared practices, and supportive environments. According to [Bryk and Schneider \(2002\)](#), effective teacher cooperation requires a high level of trust as well as mutual respect among the participating educators. Additionally, [Ingersoll and Strong \(2011\)](#) and [Little \(1990\)](#) found that the school's culture, the support of leadership, and teacher attributes such as experience, subject area, and ideas about cooperation may all affect the results of teacher collaboration.

However, it is essential to keep in mind that working together as teachers poses several difficulties that must be overcome. According to [Little \(1990\)](#) and [Tschannen-Moran and Barr \(2004\)](#), several factors might prevent instructors from effectively collaborating, including workload, time limits, differences in viewpoints and beliefs, a lack of resources, and various degrees of preparation among teachers. As a result, further study is required to get a deeper understanding of the intricacies of teacher cooperation and its influence on professional growth and the results for students.

In a nutshell, the research indicates that teacher cooperation in professional learning communities (PLCs) and collaborative teaching techniques may have a positive influence on professional growth and the results for students. The efficiency of teacher cooperation may be affected by a variety of factors, including the culture of the school, the leadership, and the individual qualities of individual teachers ([Thoonen, Slegers, Oort, Peetsma, & Geijssels, 2011](#)). Nevertheless, some obstacles must be overcome before progress can be made. The outcomes of past studies provide insightful information and establish the framework for additional research into the function that teacher cooperation plays in the educational system.

3. Methodology

The present investigation employed a mixed-methods research design, encompassing qualitative and quantitative research techniques. The rationale behind selecting this approach was its ability to facilitate the acquisition of both quantitative and qualitative data, in addition to enabling a more comprehensive exploration of the participants' attitudes and experiences.

[Creswell and Creswell \(2018\)](#) posit that mixed-methods research is a suitable methodology for inquiries that necessitate a thorough understanding of the phenomenon under investigation and when multiple perspectives or sources of data are crucial in achieving this comprehension.

The quantitative aspect of the study involved administering a survey to elicit responses from educators regarding their perspectives on teacher collaboration, professional development, and the resultant impact on their pupils. The survey items were formulated through a comprehensive examination of existing literature and underwent a preliminary evaluation before dissemination to the respondents.

The qualitative component of the study involved administering interviews and focus groups to educators to obtain a more comprehensive understanding of their perceptions and experiences regarding collaborative teaching methodologies and teacher collaboration within professional learning communities (PLCs). The utilization of interviews and focus groups facilitated a comprehensive investigation of the viewpoints and encounters of the participants.

The study's cohort comprised K-12 educators who were actively engaged in professional learning communities (PLCs) or collaborative teaching methodologies. The researchers employed purposeful sampling to guarantee a varied and inclusive representation of grade levels, subject areas, and school environments, as outlined by [Creswell and Creswell \(2018\)](#). The determination of the sample size was based on the principles of saturation, which assert that the collection of data should persist until the point at which no novel information is being acquired ([Guest, Bunce, & Johnson, 2006](#)).

The statistical techniques employed for the analysis of the survey data included both descriptive and inferential methods. The study employed descriptive statistics to provide a concise summary of the data and inferential statistics, including correlation and regression analysis, to examine the associations among variables and discern noteworthy distinctions between groups of educators.

Thematic analysis was employed to identify patterns and themes in the qualitative data. The rationale for selecting this methodology was based on its ability to facilitate the recognition of shared patterns and distinctions in the perceptions and behaviours of the subjects ([Braun & Clarke, 2006](#)).

4. Results and Discussion

The following sections explain the results obtained from the statistical analysis. [Table 1](#) presents the descriptive statistics.

Table 1. Descriptive statistics.

Variable	Mean	Standard deviation	Minimum	Maximum
Perceptions of teacher collaboration	3.8	0.7	2.1	5.0
Professional development opportunities	4.2	0.5	3.1	5.0
Student outcomes	4.0	0.6	2.8	5.0

Table 1 presents the mean scores and standard deviations for the dimensions of the instrument used in the study. The mean score for 'impressions of Teacher Collaboration' is 3.8, which indicates that, on average, instructors have favourable impressions of other teachers working together. There is some variety in instructors' judgements, as shown by the fact that the standard deviation is 0.7, with some teachers having more favourable impressions than others. Some teachers have less favourable views of teacher collaboration, as shown by the lowest value of 2.1, while some teachers have highly positive perceptions of teacher collaboration, as indicated by the highest value of 5.0. This can be inferred from the fact that the range of values extends from 2.1 to 5.0.

The average score for Professional growth chances is 4.2, which indicates that instructors have the impression that they have access to chances for professional growth of a good caliber. The fact that the standard deviation for teachers' impressions of professional development opportunities is just 0.5 implies that there is a very little amount of variation in these perceptions, with the vast majority of teachers having favourable opinions. The lowest possible score of 3.1 shows that some teachers believe they have fewer possibilities for professional development, while the highest possible score of 5.0 indicates that some teachers believe they have access to a large number of opportunities of high quality.

The fact that the mean score for Student Outcomes is 4.0 indicates that instructors believe that the collaborative efforts they put in have a favourable influence on student outcomes. It is evident that the standard deviation for teachers' opinions of student results is 0.6, which indicates that there is some range in those perceptions, with some instructors having more favourable impressions of student outcomes than others. Some teachers have the perception that their efforts to collaborate with other educators have very little impact on the outcomes for their students, as indicated by the minimum value of 2.8, while some teachers have the perception that their collaborative efforts have a very positive impact on the outcomes for their students, as indicated by the maximum value of 5.0.

Table 2. Inferential statistics.

Variable	T-value	P-value	95% Confidence interval	Effect size (d)
Perceptions of teacher collaboration	2.45	0.018	[0.32, 1.12]	0.50
Professional development opportunities	-1.15	0.255	[-0.87, 0.32]	-0.20
Student outcomes	3.72	0.001	[0.78, 1.98]	0.70

Table 2 presents the inferential statistics on the dimensions of the instrument of the study. At a significance level of 0.05, the t-value for the question "Perceptions of Teacher Collaboration" is 2.45, which shows that there is a statistically significant difference from the value zero. The p-value that is linked with this difference is 0.018, and because this value is lower than the significance threshold, it can be concluded that the difference may be considered to be statistically significant. The 95% confidence range for the mean difference in perceptions of teacher cooperation is [0.32, 1.12]. Because this confidence interval does not contain zero, it further supports the idea that there is a statistically significant difference. The effect size (d) of 0.50 indicates that the cooperation of teachers has a modest impact on students' views.

At a significance level of 0.05, the t-value for the variable "Professional Development Opportunities" is -1.15, which shows that there is not a statistically significant difference from the value zero. The corresponding p-value is 0.255, and as this value is higher than the significance threshold, it may be concluded that the difference does not meet the criteria for being statistically significant. The lack of statistical significance is further supported by the fact that the confidence interval for the mean difference in perceptions of opportunities for professional growth ranges from [-0.87 to 0.32]. This confidence interval includes the value zero. Given that the impact size (d) for professional development opportunities was -0.20, it seems that views are only marginally affected by these possibilities. At the 0.05 level of statistical significance, the t-value for Student Outcomes is 3.72, which shows that there is a statistically significant difference from the value of zero. The difference in question has a p-value of 0.001, which is lower than the threshold of statistical significance; hence, this indicates that the difference in question is statistically significant. Because the confidence interval for the mean difference in views of student outcomes ranges from [0.78] to [1.98], which does not contain the value zero, this finding provides more evidence that the differences are statistically significant. The effect size (d) of 0.70 indicates that the use of collaborative teaching approaches has a significant impact on student perceptions of outcomes.

5. Qualitative Data Result

5.1. Benefits of Teacher Collaboration

"Collaborating with my colleagues has been incredibly beneficial for my professional growth. I have learned so much from their diverse perspectives and experiences."

This participant illustrates how cooperating with colleagues has favourably influenced their professional progress, which is relevant to the subject of the advantages of teacher cooperation, which is reflected in this remark. It shows that participating in collaborative activities has offered excellent learning opportunities via a varied range of experiences and viewpoints, highlighting the perceived advantages of cooperation within a professional learning community.

5.2. Barriers to Teacher Collaboration

"One of the main challenges to teacher collaboration is a lack of time. We are all so busy with our responsibilities that finding time to collaborate becomes challenging."

This participant cites a significant obstacle to teacher cooperation as a lack of time, and the subject of barriers to teacher collaboration is reflected in this quotation. It seems that time limits are seen as a barrier to successful cooperation among instructors, as they struggle to find a balance between their particular obligations and attempts to collaborate with other people.

5.3. Factors Facilitating Collaborative Teaching Practices

"A supportive school leadership that encourages and values collaborative practices has been instrumental in promoting collaborative teaching practices among teachers."

The participant emphasizes the need for supporting school leadership in this quotation, which ties into the overarching issue of characteristics that facilitate collaborative teaching methods. It seems to imply that productive school leadership that supports, nurtures, and places a high value on collaboration is seen as an essential component in the process of fostering collaborative teaching methods among educators.

5.4. Impact of Collaborative Teaching Practices on Student Learning

"I have noticed a significant improvement in my students' learning outcomes since I started collaborating with my colleagues. Our collaborative efforts have helped us identify effective instructional strategies and tailor our teaching to better meet our student's needs."

As the participant describes the good benefits that collaborative teaching methods can have on student outcomes, this quotation illustrates the central topic of the influence that collaborative teaching practices may have on student learning. It seems that collaboration efforts among teachers have resulted in improved student learning outcomes, as instructors have been able to discover successful instructional techniques and personalize their teaching to better fit the requirements of their students. This shows that collaborative efforts among teachers have resulted in improved student learning outcomes.

6. Discussion

According to the results of this research, teacher cooperation is seen as having significant positive implications for both professional development and student learning. The participants stressed how valuable the many viewpoints and experiences that result from working with other coworkers are. This is consistent with earlier research by [Holt and Peterson \(1981\)](#), which demonstrated the favourable effect of teacher cooperation on professional growth. The results imply that collaborative activities within professional learning communities may offer important learning opportunities, establish a culture of continuous improvement, and boost a teacher's overall effectiveness.

Time restrictions were another important hurdle that the participants recognized as standing in the way of successful teacher cooperation. This conclusion is consistent with previous research in which [Sacchanand \(2012\)](#) emphasized time as a major obstacle for instructors to participate in collaborative activities. Little argues that time is a barrier that prevents teachers from engaging in collaborative activities. It suggests that finding sufficient time for cooperation among the demands of individual tasks might be a barrier to successful collaboration among instructors. This is because individual obligations can compete for a teacher's attention. This research highlights the need for school administrators and politicians to promote teacher cooperation and provide appropriate time for it to overcome this obstacle.

One of the most important things that can be done to facilitate collaborative teaching methods is to have supportive school leadership. The participants stressed how important it is for a school to have strong leadership that appreciates and supports cooperation among the teaching staff ([Geijssels, Sleegers, Stoel, & Krüger, 2009](#)). This conclusion is consistent with previous research, which highlights the essential role that school leaders play in establishing a collaborative culture inside their institutions and encouraging collaborative behaviours within their teaching staff. It is suggested that school administrators actively encourage and acknowledge collaborative efforts, offer the appropriate resources and support, and develop a climate that is favourable to the growth of collaborative teaching techniques.

The use of collaborative teaching approaches has a beneficial effect on the learning outcomes of students. The participants claimed that the results of student learning had improved as a consequence of collaborative efforts ([Sharan, 1980](#)). These efforts included developing successful instructional techniques and adapting teaching to fit the requirements of individual students. This conclusion lends credence to other studies that shed light on the beneficial connection that exists between collaborative teaching strategies and increased student learning. It suggests that efforts made by instructors working together to collaborate may increase the quality of education, which can then lead to better student outcomes and, ultimately, help students learning.

As per the research results, collaborative efforts among teachers are imperative for fostering the professional development of educators and achieving favourable academic outcomes for students. [Nguyen and Ng \(2020\)](#) conducted research indicating that the establishment of a learning culture within educational institutions is of utmost importance, whereby educators collaborate. The facilitation of information exchange among educators is a critical component in the development of effective pedagogical practices that are based on empirical research. [Sancar, Atal, and Deryakulu \(2021\)](#) posit that teacher collaboration is an essential element in the professional development of educators as it cultivates a sense of responsibility within the organizational setting.

Nonetheless, the convergence of several factors is imperative for successful teacher collaboration. The restricted availability of time among educators poses a significant challenge to the effectiveness of collaborative efforts. [Adewumi and Mosito \(2019\)](#) research showed that teachers' workloads and other duties leave them with little time for collaborative efforts. [Le, Janssen, and Wubbels \(2018\)](#) identified time constraints as a significant impediment to teacher collaboration in their independent study.

Professional learning communities (PLCs) are one strategy that has helped schools overcome this barrier. Professional learning communities (PLCs) refer to groups of educators who are dedicated to improving their teaching practices and the academic achievements of their students. They allow educators to network with one another and take part in various forms of professional growth. According to [Hargreaves \(2019\)](#), the

implementation of PLCs has been demonstrated to enhance student learning through the promotion of teacher collaboration.

The endorsement of leadership is a critical component of the success of teacher teams. Ninković and Knežević Florić (2018) research indicates that leadership plays a crucial role in fostering a collaborative culture within educational institutions. According to Kelley, Knowles, Holland, and Han (2020), the provision of sufficient resources, support for collaborative initiatives, and the cultivation of a work environment that fosters trust and respect are factors that can increase the likelihood of teachers engaging in collaborative work.

The integration of technology can facilitate enhanced collaboration among educators in the classroom setting. According to Alqahtani, Bhaskar, Elumalai, and Abumelha (2018), various online platforms and technologies, such as video conferencing, social networking, and collaborative software, can facilitate educators' communication and idea exchange, irrespective of their geographical location or time zone. Caena and Redecker (2019) have found that the integration of technology in collaborative activities can enhance teacher engagement and provide opportunities for professional development.

The positive effects of teacher cooperation on student learning extend beyond the realm of professional growth. Toropova, Myrberg, and Johansson (2021) research shows a correlation between teacher cooperation and better student outcomes, including greater academic success and graduation rates. According to the findings of Iglesias-Pradas, Hernández-García, Chaparro-Peláez, and Prieto (2021), the implementation of collaborative teaching methodologies resulted in improved academic achievements for students.

The benefits of collaborative efforts among teachers extend beyond the confines of the classroom. The findings of Goddard and Kim (2018) study suggest that collaborative efforts among teachers result in positive outcomes for students, increased job satisfaction among educators, and reduced turnover rates. According to Li, Yamaguchi, Sukhbaatar, and Takada (2019), research, collaborative efforts among teachers result in enhanced school leadership and facilitate the development of a shared vision and mission among colleagues.

7. Implication of the Study

The findings of the study offer empirical evidence to support the notion that teacher collaboration plays a crucial role in the success of professional development and student performance. The study's results suggest that there exists a favourable association between teacher collaboration and the improvement of professional development, job satisfaction, and academic achievement among students. The discovery mentioned above holds significant implications for policymakers and educators, emphasizing the importance of incorporating teacher collaboration into teacher professional development programs and curricula.

This study offers valuable insights into the advantages and challenges of teacher collaboration, along with the various factors that influence its effectiveness. The findings of the study suggest that effective teacher collaboration requires a shared comprehension of objectives, mutual respect, interdependence, and open communication among the teaching cohort. The study has shown that educators's attitudes and beliefs about collaboration have a significant impact on their propensity to engage in collaborative activities. Thus, the results of the investigation can be employed to develop strategies that promote teacher collaboration and address the hindrances that impede its effectiveness.

8. Conclusion

The findings of this study contribute to an enhanced understanding of collaborative pedagogical strategies and teacher collaboration within communities of professional development. The discovered advantages, challenges, variables that facilitate collaboration, and effects offer educators, school administrators, and policymakers information that may be used to encourage successful cooperation among instructors. The findings of this research highlight the significance of identifying the beneficial benefits that collaborative teaching techniques may have on student learning outcomes, providing appropriate time for collaboration, cultivating supportive school leadership, and allocating sufficient time for collaboration. The results also show the need for continued study and efforts to promote teacher cooperation and its influence on student learning in educational environments. This is a necessity that is highlighted by the findings.

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تقرير بحث رقم (5)

The Role of Cloud Computing in Improving the Performance of School Principals.	عنوان البحث
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The Role of Cloud Computing in Improving the Performance of School Principals

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Cloud Computing, Improving the
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ABSTRACT

The primary objective of this research endeavour was to evaluate the influence of cloud computing on enhancing the efficacy of school principals within the context of the Ajloun Governorate. Additionally, the study sought to ascertain the extent of accessibility to requisite cloud computing resources and the actualization of administrative proficiency among school principals in the aforementioned region. To attain these research goals, a descriptive research

design was employed, adopting a quantitative approach with a questionnaire serving as the principal tool for data collection. The research was conducted on a representative sample of 180 principals, encompassing both male and female individuals, within the Ajloun Governorate. The outcomes of this investigation indicate that both the accessibility to cloud computing requirements and the manifestation of administrative competence among school principals in the Ajloun Governorate were notably high. These findings imply a substantive and positive influence of cloud computing on the enhancement of school principals' performance.

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1. Introduction

The notable progressions within the information and communications technology sector have precipitated the emergence of varied methodologies and strategies underpinned by multimedia technology. These approaches harness technological innovations to augment the efficacy of educational processes (Alashhab et al., 2021). The progression of technology has exerted an influence on the educational system, prompting educators to explore modern methodologies and strategies in response to challenges encountered in the educational continuum. The evolutionary developments and ensuing transformations have mandated the assimilation of new responsibilities and duties for personnel across various educational institutions, notably for school administrators (Ali, Mazen, & Hassanein, 2018). In addressing these unfolding trends, it became imperative to endow school principals with the essential leadership skills and knowledge, enabling them to proficiently navigate and adapt to global developments and alterations within the educational landscape (Ali, 2019). Therefore, furnishing the principal with leadership skills endows educational institutions with the capacity to evolve, endure, expand, and effectively respond to contemporary environmental occurrences and shifts. This is facilitated by the principal's capacity to exert influential flexibility in addressing events and cultivating a cohesive organizational culture (Alonso-Monsalve, García-Carballeira, & Calderón, 2018).

Nonetheless, the role of school leadership holds pivotal significance in augmenting, refining, and streamlining educational administrative responsibilities to amplify their adaptability and capacity for advancement. Owing to notable advancements in administrative methodologies, technological advancements, and various influences necessitating rapid changes in educational institutions, an escalating imperative exists to re-evaluate administrative and educational paradigms to harmonize with the dynamic nature of education and optimize its outcomes (Arpaci, 2019). It is acknowledged that the onset of the third century represented more than a mere historical juncture, but rather ushered in substantial transformations, with arguably the most salient being the notable advancements in communication and information technology aimed at meeting evolving needs in a dynamic world. Within the pages of "Building the School of the Future" by Hedley Bear, a prospective scenario is delineated, providing a lucid perspective on the potential developments in both the current and forthcoming stages (Elhoseny et al., 2018). The adoption of a transformative pedagogical approach within the educational institution involves the incorporation of digitalization and e-learning methodologies. This strategic initiative aims to cultivate an innovative school community and empower students to leverage novel resources, including but not limited to cloud computing (Juma & Tjahyanto, 2019).

Cloud computing applications have attracted considerable attention and pervasive adoption. The swift progression of artificial intelligence technologies underscores the critical need to invest in and harness them within the educational domain. Such investment is imperative for proactively anticipating forthcoming opportunities and constitutes an urgent imperative demanding prompt preparedness (Njenga et al., 2019). Cloud computing, a state-of-the-art technology, entails transferring computer processing and storage to a cloud server via the Internet. This allows IT programs to be delivered as services, enabling users to access files and applications without local installations. This not only saves costs but also offers convenient access to a diverse array of applications (Comar, Hegazy, Henderson, & Hrozencik, 2014).

The advent of the digital age has instigated a transformative revolution in education and various dimensions of human existence. Technological progress during this era has empowered learners to undertake a more proactive and self-directed role in their educational endeavours (Kumar & Bhardwaj, 2020). The Internet has facilitated the establishment of online communities characterized by innovative cognitive frameworks, allowing individuals of diverse age groups worldwide to engage in collaborative endeavours and derive mutual benefits from shared knowledge. It has bestowed upon children the capacity to take responsibility for their learning experiences through participation in activities involving discovery, expression, and experimentation (Alam, 2023). The constructivist theory establishes an interrelation between the acquisition of knowledge and the application of technology. Within the educational context, the learner employs technology to engage in exploration, investigation, and the generation of diverse solutions to challenges encountered in their life (Almaiah & Al-Khasawneh, 2020). Embracing a relational perspective facilitates the acknowledgment and understanding of interconnections among diverse phenomena. Consequently, cloud computing emerges as a direct consequence of the industrial revolution spanning all four phases. The fourth industrial revolution, characterized by digitalization, manifests through interconnected networks, the Internet of Things, and the swift exchange of information (Agrawal, 2021). The underpinnings of digital transformation, delineated by the World Bank, encompass communication and information technology infrastructure, an educational system attuned to the requisites of the digital era, and novel responsibilities vested in school principals. This study endeavours to augment the administrative proficiency of educational leaders, particularly school principals, by addressing diverse challenges and variables encountered in their roles. The researcher specifically concentrates on the utilization of cloud computing applications as a mechanism to enhance the skill set of school principals and elevate the overall performance of educational institutions.

2. Research Questions

The objective of this investigation is to scrutinize the inquiries posited in the preceding discourse, delineated as follows:

1. To what extent are the prerequisites for cloud computing available in schools within the Ajloun Governorate, as perceived by school principals?
2. How do school principals in the Ajloun Governorate perceive the actuality of administrative performance within their domain?
3. What function does cloud computing play in the administrative performance of school principals within the Ajloun Governorate?

3. Literature Review

Cloud computing is centred on the utilization of shared resources, with expenses contingent on their internet-based usage. This technological innovation evolved as a response to the challenges posed by costly technical resources and aims to optimize resource management for enterprises, especially following the establishment of internet infrastructure across various global regions (Samyan & St Flour, 2021). The emergence of laptop computers and smartphones has substantially facilitated communication, primarily

attributable to their capacity for Internet connectivity and the exchange of diverse information and files. Virtualization technology optimizes computing resources, augmenting their adaptability in response to workload and usage volume. The ownership-related expenditures, including maintenance and upgrades, are assumed by an external entity referred to as the service provider (Tajur, 2022). Educational institutions were incentivized to adopt this technology with the aim of reducing technical and informational costs, thereby influencing the efficacy of the human workforce in fulfilling their responsibilities within these establishments. The administrative performance of these institutions, as a determinant of efficiency and effectiveness, serves as a conduit for attaining their organizational objectives (AL-Omari, 2022). Elevating administrative performance has emerged as a central emphasis. The paramount objective of these institutions is to secure their success and distinctiveness by refining operational processes to attain heightened efficiency and effectiveness, concurrently mitigating both time and financial expenditures (Al-Muraikhi, 2023).

The genesis of cloud computing dates back to the 1960s, attributed to the pioneering efforts of computer scientist John McCarthy. McCarthy envisioned a prospective paradigm in which computing would be structured akin to a public utility, affording users the capacity to procure computing power in a manner analogous to procuring electricity from a centralized authority (Al-Adwan, 2023). The terminology was introduced by Ramnath Cellapa during a discourse in 1997, where he characterized it as an innovative computer paradigm. The commencement of cloud computing can be pinpointed to 1999 when Salesforce became a trailblazer in providing a platform for dispensing enterprise applications. Amazon entered the arena with Amazon Web Services in 2002, and later introduced EC2 as a commercial service in 2006. In 2007, IBM and Google initiated a research initiative in conjunction with other institutions, delving into the realm of cloud computing (AL-Safasfeh & Al-Ajlouni, 2019).

The term "cloud computing" is currently ubiquitous yet somewhat nebulous. It encapsulates a conceptualization involving services, applications, software, hardware, and resources accessible via the Internet, managed by a third-party service provider within their data centres. Individuals expressing discontent with any or all facets of this arrangement are colloquially labelled as dissenters within the payment-per-use framework (Ismael & Mubariz, 2020). This system, commonly embraced by enterprises, entails remuneration for the utilization of cloud computing services. The remuneration is contingent upon the usage of processing capabilities, storage capacity, memory size, the quantity of authorized users, and other relevant factors. Essentially, instead of utilizing local computing resources for network communication and program and file storage, these resources are centralized in data centres commonly referred to as the cloud (ALharahsheh & Al-Dhiabat, 2019). The computer, in this context, serves as a conduit for accessing and communicating with the designated cloud infrastructure. This is applicable across all computing devices within an organization. Instead of installing the programs directly onto the devices of employees, these applications are instantiated on the cloud and function in a conventional manner (Baldassarre et al., 2018).

As per the National Institute of Standards and Technology definition, cloud computing is delineated as a framework facilitating seamless and enduring network access. Within

this framework, a compilation of computing resources, encompassing networks, servers, storage units, applications, and services, can be promptly provisioned and activated with minimal administrative intervention or engagement from service providers (Qasem et al., 2019). The cloud model comprises five fundamental attributes, three service delivery models, and four implementation models. It is denoted as a technological framework that leverages computational capabilities, computer storage resources, and processing capabilities through the Internet. This suite of services is provided as a service by Internet service providers (Komalasari, Arafat, & Mulyadi, 2020). Cloud computing technology necessitates the existence of the subsequent components:

- i. User or beneficiary: The user or recipient of this technology will employ their computer or mobile device, requiring an Internet connection, to access and avail themselves of its services (Özdemir, Sahin, & Öztürk, 2020).
- ii. Applications: The recipient has the capacity to employ diverse application programs hosted on the cloud, encompassing functionalities such as word processing, presentation, spreadsheet, and information transfer and sharing services (Alashhab et al., 2021).
- iii. Platforms: Apple and Google serve as purveyors of this service, furnishing extensive servers characterized by substantial storage capacities and expeditious data processing capabilities (Ali et al., 2018).
- iv. Infrastructure: The cloud infrastructure is integral to the provision of the service, encompassing personal computers, the Internet, and data storage facilities (Ali, 2019).
- v. Services: Applications provide an array of services accessible to users upon establishing connectivity between their device and the Internet. These services encompass text editing, email, calendar functions, chat, and additional functionalities (Alonso-Monsalve et al., 2018).

Cloud computing is characterized by a distinct set of attributes, with self-service being one of them. This denotes the capacity for users to autonomously access and employ cloud-based applications in accordance with their individual needs. Users possess the ability to generate, modify, and store data within the cloud infrastructure utilizing a web browser (Arpaci, 2019). Flexibility pertains to the capacity to transition effortlessly between diverse service providers without encountering substantial adverse repercussions. It also involves the seamless integration of various services, such as procuring storage from one provider and employing software from another, contingent upon the efficacy and dependability of each service provider (Elhoseny et al., 2018). Furthermore, flexibility encompasses the ability to expand and adapt to forthcoming changes by leveraging current versions of software and hardware within the cloud. Cloud computing affords users the capability to access its services through a web browser, irrespective of the operating system, access device, or physical proximity to the cloud. Cost reduction is realized by eliminating the necessity to procure server space, software, storage devices, and hardware maintenance; these responsibilities are instead carried out remotely by the service provider through an internet connection utilizing personal computers, desktops, or mobile phones. Usability is a pivotal facet of cloud computing services, facilitated by contemporary modes of communication via digital devices over the Internet. This facilitates convenient file storage and retrieval from any location, as well as seamless sharing and collaboration with other users (Juma & Tjahyanto, 2019).

Various enterprises provide users with cloud computing services, with Microsoft, Amazon, and Google emerging as particularly noteworthy providers. In this discourse, our attention will be directed towards the preminent services extended by Google, acknowledged for their widespread adoption, extensive usage, and noteworthy attribute of being proffered without charge. Some of the distinguished services encompass email, Google Drive, Google Docs, Google Sites, OneDrive, Google Presentations, Google Forms, Google Calendar, and Google Meet (Njenga et al., 2019). Students in media-related disciplines have the opportunity to utilize a diverse array of services, encompassing access to a variety of academic resources, research applications, and educational tools, contributing to the enrichment of their scholarly and professional pursuits. This is achieved without the necessity for device exclusivity, whether it be a mobile or computer, and is not constrained by physical location or specific temporal limitations.

Scholarly investigations have demonstrated that the integration of cloud computing in education yields numerous advantages. This encompasses the capability for users to retrieve their files and applications through the cloud, obviating the necessity for the installation of applications on their personal devices (Kumar & Bhardwaj, 2020). As a result, this mitigates security risks, diminishes the probability of file loss or damage, and conserves time associated with installation, operation, and upgrades. It leverages the capabilities of expansive servers to execute intricate tasks that might necessitate high-performance equipment (Alam, 2023). Merely possessing a computer equipped with high-speed internet connectivity and accessing a website providing requisite software enables users to circumvent the substantial expenditure associated with software acquisition. The prevailing architecture of cloud computing entails data centres endowed with the capacity to deliver services comprehensively to consumers globally. The organization exhibits the capability to swiftly scale its computational services within a brief timeframe subsequent to the decision to expand (Almaiah & Al-Khasawneh, 2020).

The role of the school principal has evolved from that of an educational director overseeing academic affairs within the school to that of a leader responsible for instituting requisite reforms within the educational institution. The principal's primary focus is on formulating and nurturing a shared vision for the school, concurrently improving modes of communication and collaboration with the staff (Agrawal, 2021). This requires the empowerment of the school principal in the execution of his professional duties. A responsible educational administrator collaborates with the school staff utilizing evidence-based, expert, and compassionate principles, as opposed to relying on authoritarian leadership approaches (Samyan & St Flour, 2021). The efficacy of the school principal in accomplishing his mission is contingent upon the adoption of an effective administrative and leadership style, continual professional development, a profound awareness of the significance of his responsibilities, and a proclivity towards innovation, growth, and creativity in his professional endeavours. The school principal is obligated to acquire a comprehensive comprehension of the educational system, encompassing curricula and curricular concerns. Moreover, they must exhibit awareness of the challenges facing the school and engage in active collaboration with staff and the local community to address these challenges (Tajur, 2022). The school principal is required to harbour a clear and explicitly articulated vision. This vision, endowed with empowering qualities, serves to fortify the principal's resilience and self-assurance, concurrently compelling others to actively

participate in their work. The principal, through the enhancement of the skills and competencies of the staff members, and the cultivation of a culture grounded in mutual respect, possesses the capacity to effect positive transformation within the school. In order for this favourable transformation to transpire, the principal must actively advocate for the professional development of the workers and educators, fostering a conducive psychological milieu that champions the principles of collaboration and teamwork (AL-Omari, 2022).

The foregoing information suggests that cloud computing has aroused substantial interest among stakeholders in the information industry. This is attributable to its capacity to provide infrastructure, services, and applications through a network, offering compelling advantages for educational institutions (Al-Muraikhi, 2023). A pivotal attribute of cloud computing lies in its capability to streamline the generation and utilization of diverse media forms, including documents, tables, images, presentations, and interactive video displays, by administrative entities. The imperative adoption of cloud computing in educational institutions stems from its capacity to store audio files without necessitating substantial storage capacity (Al-Adwan, 2023). Multiple investigations have corroborated that the incorporation of cloud computing resources in educational settings fosters learning and stimulates innovation, operating at both individual and collective levels. Furthermore, it serves to address educational challenges (AL-Safasfeh & Al-Ajlouni, 2019). Although there might exist a few drawbacks linked to cloud computing, they are largely negligible when juxtaposed against the substantial opportunities presented by the cloud environment. Additionally, the cloud adheres to rigorous security standards, resilient to minor errors that may occur, underscoring the inherent security robustness of the cloud environment (Ismael & Mubariz, 2020).

4. Previous Studies

AL-Safasfeh and Al-Ajlouni (2019) This study investigated the influence of an educational program centred around cloud computing on the comprehension of scientific concepts among eighth-grade students in the domain of science. The study encompassed two groups: an experimental group (n=30) subjected to instruction via cloud computing, and a control group (n=30) receiving traditional instruction. To achieve the study's objectives, the researchers developed an educational program focused on cloud computing along with an assessment test to measure the assimilation of scientific concepts. The findings revealed statistically significant differences in the mean scores of students from the two groups on the scientific concepts test, with the experimental group demonstrating superior performance.

Ismael and Mubariz (2020) The research scrutinized the correlation and strength of the relationship between the prerequisites for implementing cloud computing technology and the quality of educational services. The primary objective was to evaluate the levels of educational service quality and cloud computing technology adoption within private universities. To achieve this, a survey questionnaire was employed to collect primary data from a sample of 374 personnel comprising faculty members, supporting staff, and administrative personnel. The study revealed several key findings, notably: a positive correlation exists between cloud computing technology and the quality of educational services in the examined private universities, and there is also a positive correlation. A statistically significant relationship was identified between each of the five attributes of

cloud computing technology and the support provided by senior management in the realm of computing technology. The cloud facilitates organizational support in areas such as change strategies, infrastructure, confidentiality, and security. Furthermore, there is a statistically significant correlation between the prerequisites for implementing cloud computing and all facets of educational service quality.

Ababtain and Al-Dariwish (2021) a study at Shaqra University investigated the utilization of Cloud computing in education. It explored applications, significance, and challenges through a questionnaire administered to 100 female students from the College of Science and Arts. Results showed strong student acceptance and recognition of the significance of Cloud computing in education, alongside identified barriers to its implementation at Shaqra University.

ALharahsheh and Al-Dhiabat (2019) investigated the influence of information technology on augmenting the administrative efficacy of school principals within the schools affiliated with the Ramtha District Education Directorate. Additionally, it explored the modulating effects of variables such as gender, educational qualifications, educational stage, and administrative experience on this impact. The sample encompassed 70 headmasters and headmistresses, and a comprehensive tool comprising 53 paragraphs across four sections (instructor, student, school environment, and local community) was developed to assess pertinent factors. Employing a descriptive methodology, the study revealed a noteworthy positive impact of information technology on enhancing the administrative performance of school administrators in the Ramtha District schools. The ranked order of impact across domains was as follows: student, teacher, community, and school environment. The community displayed exceptional academic performance, while the educational environment demonstrated a moderate level of academic achievement. Furthermore, the findings indicated the absence of statistically significant disparities attributed to gender, scientific expertise, educational level, and managerial background across all domains.

AL-Omari (2022) acknowledged the impact of cloud computing on advancing proficiency in Google educational applications and fostering critical thinking skills among students enrolled in the Internet Applications in Education course at Mutah University. The study involved a sample of 22 students assigned to the experimental group, instructed through cloud computing, while a control group of 22 students received conventional instruction. Employing a semi-experimental methodology, data collection utilized note cards and a critical thinking scale. The results revealed statistically significant differences in student performance on the observation card, favouring the experimental group. However, no significant statistical differences were observed between the two groups in terms of their scores on the critical thinking measure. Consequently, the study recommends the integration of cloud computing into university education to enhance proficiency in utilizing Internet applications.

5. Methodology

The current study adopted a descriptive research approach and utilized quantitative methods to furnish a thorough, accurate, and systematically organized representation of the characteristics and data associated with the studied population. Saunders, Lewis, and Thornhill (2016) posit that the fundamental aim of descriptive quantitative research is to meticulously outline and expound upon the various attributes of the subject or situation under investigation. Following this, the collected data undergoes scrutiny and subsequent presentation.

5.1 Population and Sample

The study focused on school principals within the Ajloun governorate as its population. Due to the considerable size of the entire population, the researcher employed the established technique of sampling to choose a subset for investigation. This entailed the selection of 230 schools and their respective principals. Out of the distributed 230 questionnaires, 190 were returned. After excluding responses from 10 participants with insufficient information, a total of 180 surveys remained available for analysis.

5.2 Instrument of Study

The current research employed questionnaires as a data collection method to elicit responses and evaluate participants' perspectives on various survey topics. Utilizing the Likert scale, featuring five possible values ranging from "1" to "5", responses were assessed and categorized into three segments. The initial round of the survey captured personally identifiable information such as gender, educational attainment, and years of experience. The second part comprised 21 questions examining the accessibility of cloud computing requirements, while the third part involved 13 questions addressing the actuality of administrative performance. It's noteworthy that the framework for these sections is based on Wassel (2020) study, which serves as the foundational reference.

5.3 Validity of Instrument

A cohort of ten educational technology professionals, concurrently serving as faculty members at Jordanian universities, were engaged to evaluate the research instrument for its reliability. These experts were entrusted with assessing the instrument's linguistic structure, scientific accuracy, and clarity. The unanimous consensus among the experts was that the instrument was generally acceptable, with only a few minor linguistic modifications deemed necessary.

5.4 Reliability of Instrument

One method employed to assess the reliability of a measurement involves scrutinizing the consistency of results by employing comparable samples and instruments while maintaining control over all other variables. The examination of response consistency was conducted through the utilization of Cronbach's alpha coefficient. The reliability of a survey is indicative of its dependability, as articulated by Saunders et al. (2016). Reliability is deemed attained when the survey attains or surpasses a minimum threshold of 60%.

Table 1

Cronbach Alpha Test.

Variables	Value
cloud computing requirements	0.833
Administrative performance	0.825

The outcomes presented in [Table 1](#) demonstrate a robust degree of consistency in the study, as evidenced by their alignment falling within the range of 0.833 and 0.825. Additionally, it is imperative to acknowledge that each section of the survey yielded a Cronbach's alpha coefficient exceeding 0.60, signifying a significant level of reliability. Consequently, no inconsistencies were identified among the diverse components of the research instrument.

5.5 Data Analysis

The study concerns were comprehensively addressed through statistical analyses conducted using the SPSS program. The methodologies employed in this inquiry involved averaging and straightforward linear regression calculations. This section furnishes an elaborate elucidation of the outcomes derived from employing varied research methods to evaluate and characterize these results. Items garnering an average score of 2.33 or lower are designated as having a low grade, those falling between 2.34 and 3.67 are categorized as moderate, and items with a mean score equal to or exceeding 3.68 are indicative of a high level.

6. Findings and Discussion

The respondents' demographic characteristics were analysed through descriptive analysis, which involved the categorization of "gender, years of experience, and educational qualification." The male respondents constituted the majority, representing 52.8%, while females accounted for 47.2% of the total respondents. Concerning the respondents' level of experience, 44.4% had 6 to 10 years of experience, 22.8% had 1 to 5 years of experience, 19.5% had 11 to 15 years of experience, and 13.3% had more than 15 years of experience. Based on the data presented in [Table 3](#), it can be observed that 63.9% of the respondents hold a bachelor's degree, 22.2% possess a master's degree, 11.1% have a high diploma degree, and 2.8% have obtained a Ph.D. degree.

Table 2

Profile of Respondents.

The variable	Categories	N	%
Gender	Female	85	47.2
	Male	95	52.8
Years of experience	1-5 years	41	22.8
	6-10 years	80	44.4
	11-15 years	35	19.5
	More than 15	24	13.3
	Bachelor's	115	63.9
Educational qualification	High Diploma	20	11.1
	Master's	40	22.2
	Ph.D	5	2.8

The researcher employed mean values and standard deviations to evaluate the degree of availability of cloud computing requirements in schools within the Ajloun Governorate, as perceived by school administrators, in order to address the initial research question.

Table 3

Means and Standard Deviation.

N	Items	Means	St.Devs	Results
1	Adopting cloud computing contributes to maintaining databases in the event of any natural disasters or accidents, whether technical or fires.	4.08	0.73	A
2	Adopting cloud computing provides high flexibility in expanding storage capabilities	4.05	0.78	A
3	Adopting cloud computing reduces the technical pressure on the organization's existing devices	3.95	0.76	A
4	Adopting cloud computing contributes to keeping pace with the technology of hardware and software	4.12	0.79	A
5	Cloud computing provides software as per business requirements	4.69	0.73	A
6	The flexibility of operating systems and cloud applications allows dealing with all traditional operating systems.	4.00	0.79	A
7	Cloud computing allows you to leverage the programming expertise of a cloud service provider	4.15	0.83	A
8	The cloud computing service provider seeks to develop the software used based on specialized competencies.	3.80	0.78	A
9	The cloud computing service provider guarantees always-on connectivity services.	3.70	0.74	A
10	Cloud computing ensures effective communication and reduces pressure on management	3.94	0.76	A
11	Cloud computing involves timely access of information and reports	3.78	0.78	A
12	Cloud computing supports teamwork and teams	3.90	0.82	A
13	Cloud computing makes it possible to use and expand applications with ease	3.96	0.80	A
14	Cloud computing helps access applications at any time, place, and from any device	3.99	0.84	A
15	Cloud computing allows flexibility to change according to the goals and business requirements	3.98	0.73	A
16	Cloud computing ensures high flexibility in dealing with Internet browsers	3.88	0.77	A
17	Cloud computing reduces the cost of training the human element	4.02	0.75	A
18	Cloud computing reduces the cost of acquiring hardware, servers, and software	4.05	0.88	A
19	Cloud computing reduces the burden of hardware maintenance and software development	4.08	0.82	A
20	Cloud computing ensures that some information is encrypted and what is available and what is not available from the data is determined	4.02	0.80	A
21	Cloud computing provides flexibility in data updating procedures such as deletion, addition, and modification	4.01	0.73	A
Total		4.01	0.61	A

As per the data presented in Table 3, the magnitude of cloud computing requirements exhibited a mean value of (4.01) with a standard deviation of (0.61). This implies that school principals hold elevated expectations regarding the fulfilment of cloud computing requirements in schools within the Ajloun Governorate. This observation aligns with the findings of AL-Safasfeh and Al-Ajlouni (2019), Ismael and Mubariz (2020), Ababtain and AL-Dariwish (2021), and AL-Omari (2022). Among the cloud computing requirements, the item with the highest mean value is item 5, which states, "Cloud computing provides software as per business requirements" (4.69). Conversely, within the means, item 9, "The cloud computing service provider guarantees always-on connectivity services," has the lowest value (3.70).

This outcome is attributed to a fundamental characteristic of cloud computing, namely its capacity to furnish storage capacity as needed. Respondents underscored the ease of expanding storage capacity seamlessly, in contrast to the intricate and multi-step procedures involved in the implementation of traditional computing. Additionally, the increasing inclination towards adopting cloud computing ensures the protection of the provider's existing databases against both technical and natural threats. Unlike traditional

computing, which required the organization to incur regular maintenance costs and adhere to routine protocols for safeguarding against natural disasters, technological malfunctions, theft, and piracy, this aspect instils a sense of contentment. The responsibility for security and maintenance of backups lies with the service provider, Microsoft, thereby alleviating operational pressures. Moreover, the primary goal of implementing cloud computing is for managerial entities to divest from investing in information technology infrastructure. This is attributed to the service provider furnishing a sophisticated infrastructure encompassing advanced servers and scalable storage capacity. Furthermore, the provider undertakes the responsibilities of infrastructure maintenance, monitoring, and security, while facilitating convenient access from any location and at any time.

This outcome can be attributed to the heightened efficiency of communication among personnel, both within the same administrative level and across various levels. The expeditious and effective transmission of information is particularly facilitated by the swift connectivity of the Internet, allowing the utilization of electronic messages, emails, publications, and messages. Cloud computing facilitates remote work by providing constant access to databases, software, and work-related applications for employees. This ensures the effectiveness of administrative processes, uninterrupted workflow, and timely task completion. Moreover, it empowers employees to handle browsers with flexibility, accessing the Internet without significant technical or logistical barriers. Consequently, the participants in the sample unanimously agreed that cloud computing offers remarkable adaptability in managing software usage. This encompasses the capacity to promptly correct errors made by employees through effortless deletion and modification, as well as seamlessly integrating updates or new data in a convenient, efficient, and flexible manner.

The researcher utilized mean values and standard deviations to assess the reality of administrative performance among school principals in Ajloun Governorate from their perspective, addressing the second research question.

Table 3

Means and Standard Deviation.

N	Items	Means	St.devs	Results
1	The workload is compatible with my personal abilities and academic qualifications	3.76	0.68	A
2	I feel like time flies by because of the fun at work after adopting cloud computing	3.73	0.73	A
3	Using electronic means helps me complete the greatest amount of work	4.10	0.60	A
4	The software used contributed to reducing errors and achieving a high level of performance	4.05	0.63	A
5	The technology used helps me constantly improve my performance	4.00	0.65	A
6	The technology used makes me more able to do my job well	3.83	0.74	A
7	Using technology helps me create and develop my work	3.85	0.78	A
8	The technology used saves effort in completing tasks	3.87	0.76	A
9	The technology used simplifies my work	3.70	0.74	A
10	The required work is completed on time	3.93	0.71	A
11	Make sure to achieve the general goals of the school	3.78	0.75	A
12	I have the ability to take responsibility	3.90	0.79	A
13	Make sure to arrive and deliver work information in a timely manner	3.88	0.77	A
Total		3.88	0.55	A

As per [Table 4](#), human competencies exhibited a mean value of (3.88) with a standard deviation of (0.55). This suggests that there are elevated expectations among principals regarding

the reality of administrative performance in secondary schools within Ajloun Governorate. This observation aligns with the findings of previous research of [ALharahsheh and Al-Dhiabat \(2019\)](#). The highest mean value within the human competencies category is associated with item 3, stating, "Using electronic means helps me complete the greatest amount of work" (4.10). Conversely, within the same category, the lowest mean value is attributed to item 9, which asserts, "The technology used simplifies my work" (3.70).

This result can be ascribed to the availability of diverse resources facilitating it, including fast Internet connectivity and a variety of electronic applications for transmitting and exchanging information (e.g., email, video conferencing, direct file sharing). Respondents' answers also indicated their readiness to embrace cloud computing tools and applications to enhance job performance, contributing to the institution's overall objectives. The efficiency in task completion and improved service quality can be attributed to collaborative efforts, fast Internet connectivity, user-friendly Microsoft applications, and reduced reliance on paper transactions. The adoption of technology, particularly cloud computing, has led to a reduction in human errors, enhancing service quality. The outcome is also linked to the potential for remote work beyond the school's geographical boundaries, outside official working hours, facilitating timely completion irrespective of project magnitude. Employees can access applications remotely from their homes or other locations to complete unfinished tasks, without implying an increase in responsibilities beyond working hours. On the contrary, adopting cloud computing has made their routine tasks more streamlined and requires minimal effort.

To address the third question, which sought to ascertain the influence of cloud computing on the administrative performance of school principals in Ajloun Governorate, the study utilized simple regression analysis. The outcomes of this inquiry are detailed in [Table 4](#).

Table 4

Regression Analysis Results.

Variable	R	R ²	B	F	P
Cloud computing	0.700	0.491	0.920	109.815	0.000

The data presented in [Table 4](#) reveals an R value of 0.700, signifying that cloud computing elucidates 70% of the variance in the administrative performance of school principals. The F value stands at 109.815, with a significance level of 0.000, underscoring a statistically significant impact of cloud computing on the administrative performance of school principals. Furthermore, the table underscores a robust positive correlation (correlation coefficient = 0.92) between cloud computing and the administrative performance of school principals. This implies that an expansion in cloud computing correlates with a commensurate increase in the level of administrative performance demonstrated by school principals.

7. Conclusion

The primary aim of this study was to examine the impact of cloud computing on enhancing the performance of school principals. The study's outcomes underscore the significant influence of cloud computing in augmenting the administrative efficiency of administrators in Ajloun Governorate. The research affirms that a notable feature of cloud computing is its capacity to extend the scope of work beyond the physical confines of the

school. This flexibility includes the advantage of not being confined to official working hours, facilitating the timely completion of projects regardless of their scale. In essence, personnel can access applications from their residences or any location to finalize tasks left incomplete during regular working hours. In certain instances, a computer with Internet connectivity is necessary, but this doesn't imply an escalation of responsibilities beyond the standard working hours. On the contrary, it is posited that the integration of cloud computing has heightened their comfort level. This is attributed to the streamlining of routine tasks through user-friendly applications, reducing the effort required and ensuring minimal exertion.

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Tailoring gamification to individual learners: A study on personalization variables for skill enhancement

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ABSTRACT

This study conducts a quantitative inquiry into how components of gamification and customization are being used in Saudi Arabia's educational system. In our investigation, we zero in on how these factors could contribute to skill development. This investigation uses a thorough and rigorous quantitative research approach to probe students' preferences for gamification components and their thoughts on customization. The findings highlight the amazing congruence between people's preference for gamification components like points and badges and the need for adaptation and feedback in optimizing the effectiveness of the educational process. Through careful component analysis, the current investigation successfully separates two distinct constructs: one highlights the importance of flexibility and responsiveness, while the other emphasizes the significance of pace and cultural appropriateness. The results of this research have important policy and practice implications for Saudi Arabia, where educational reforms are now underway. The goal of these changes is to boost academic performance by introducing student-specific, interactive gaming into the classroom.

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1. Introduction

To engage and motivate students in a wide variety of settings, gamification has emerged as a revolutionary educational approach in the field of education (Hamari et al., 2014; Deterding et al., 2011). A gamification is an approach that aims to use the intrinsic motivation generated by games to improve academic outcomes by incorporating game components and concepts into non-game contexts (Deterding et al., 2011). The fundamental goal of this instructional strategy is to improve students' engagement with the material by tapping into their natural curiosity and desire to learn (Caponetto et al., 2014; Anderson and Dron, 2011) via the use of game features. There has been a lot of interest in the idea of using gaming mechanics in the classroom because of the belief that it may increase attention spans, simplify complex concepts, and cement knowledge in the minds of students. Personalizing the educational experience for each student has been shown to improve learning outcomes (Hamari et al., 2014; Caponetto et al., 2014).

In recent years, educators' awareness of the need to modify teaching strategies to meet individual student's unique skill sets and learning preferences has given rise to widespread interest in the notion of personalized learning (Dabbagh & Kitsantas, 2012; Van den Berghe et al., 2019). Customized learning goes beyond the bounds of traditional teaching methods because it considers students' wide-ranging backgrounds, interests, and learning styles (Van den Berghe et al., 2019; O'Donnell and

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Dansereau, 1992). Given this newfound awareness, there has been a burgeoning fascination with integrating individualized methodologies into gamified educational environments, thus amalgamating the most commendable attributes of both paradigms to cultivate more efficacious and captivating learning experiences (Hailey et al., 2016; Hamari et al., 2014).

As a result of significant national initiatives to improve the quality and effectiveness of education at all levels (Alasmari & Alshae'el, 2020) the Saudi educational system is undergoing a radical transformation. The aforementioned changes demonstrate the value of new approaches and technological advancements in the field of education. As a result, the Ministry of Education in Saudi Arabia (2020) recommends gamification as a way to improve education in the country.

There is a significant knowledge gap concerning the best ways to tailor gamified educational experiences to the unique needs and preferences of UAE learners, even though there are clear benefits to incorporating gamification and personalized learning into educational practices. It's also important to note that several studies have examined the effectiveness of customized gamification in a broad range of classroom settings throughout the globe. However, there is a clear knowledge vacuum about the precise customization aspects that are most important for promoting skill development within the distinctive UAE educational setting. The main goal of this research is to fill in some of the blanks in our understanding of customized learning and gamification so that we may all benefit from what we learn. Our study's primary goal is to determine whether or not gamified learning settings can improve students' ability to acquire and apply knowledge in Saudi Arabia.

This study's primary concern is the need for educators in the Kingdom of Saudi Arabia to have a more nuanced understanding of the customization aspects that have the greatest impact in gamified classroom settings. It's interesting to highlight the unrealized potential for a symbiotic relationship between gamification and individualization in the context of UAE education. Both tactics have been shown successful on their own, but their combined effectiveness is still being investigated.

1.1 Objective of the Study

The primary purpose of this study is to investigate and evaluate the underlying concepts of personalization in gamification, with a focus on the improvement of education in Saudi Arabia.

2. Literature Review and Previous Studies

Significant attention has recently been paid to the intersection between gamification and individualized education. Gamification, as defined by Deterding et al. (2011), refers to the practice of introducing game elements and principles to contexts where they wouldn't normally be expected to have such an impact. Caponetto et al. (2014) argue that this strategy has the potential to increase students' interest in and enthusiasm for learning. Customized learning is a pedagogical strategy in the field of education that seeks to accommodate a variety of students by adapting lessons to their individual needs and interests (Dabbagh and Kitsantas, 2012). In this part, we survey the current state of research on the intersection between gamification, personalized learning, and Saudi Arabia's educational system.

In recent years, gamification's usage as an interactive and creative method to captivate students of all ages and subjects has exploded. Points, badges, leaderboards, and storylines are only some of the game mechanics that Deterding et al. (2011) claim are used to make learning more interesting. Gamification is a popular notion because people are more likely to participate in an activity if it has game-like features, which might increase their desire to do the task at hand (Anderson and Dron, 2011).

Gamification has been introduced into the educational system to improve performance in all areas. Hamari et al. (2014) conducted a comprehensive review of 24 studies on gamification. According to their research, gamifying therapies improved user involvement, knowledge retention, and happiness. Alrasheedi and Caponetto's (2019) research looked at how gamification is being used in Saudi Arabia's higher education system. The study's findings are in line with the continuing efforts to modernize higher education in Saudi Arabia by emphasizing the potential of gamification to increase active learning and create collaboration among students.

Recognizing that each student is unique and adapting teaching methods accordingly to meet their individual needs is central to the notion of customized learning (Van den Berghe et al., 2019). This strategy considers the fact that each student is an individual with their own set of strengths, weaknesses, and learning curves (O'Donnell and Dansereau, 1992). According to Dabbagh and Kitsantas (2012), customization strategies involve adapting instruction to the learning styles of individual students by altering content, pacing, and assessment techniques.

The available literature on customized learning has shown its effectiveness in raising academic outcomes for students. In a meta-analysis of studies on customized education, Kulik (1994) found a positive connection between tailored instruction and student success. Customized instruction has also been demonstrated to increase student engagement and retention (Van den Berghe et al., 2019). Educational programs that emphasize personalized learning to successfully adapt to the varying needs of students are given high priority by the UAE Ministry of Education (2020). The potential for boosting students' learning experiences via the combination of gamification and personalized instruction is appealing. Students' interest and knowledge retention may be increased since gamified learning environments can be tailored to their individual needs, as stated by Hailey et al. (2016).

Customizing game mechanics to meet the requirements and preferences of individual students is a cornerstone of personalization in the context of gamification. The concept of adaptive gamification, as introduced by Anderson and Dron (2011), involves the dynamic modification of a game's difficulty in response to the player's skill level. The methodology elucidated in this scholarly investigation endeavors to tailor the educational challenge to the unique aptitudes and capacities of each student. The purpose of this practice is to maintain a consistent level of challenge, which is crucial for cultivating sustained engagement and facilitating effective acquisition of knowledge (Kiili et al., 2015). Furthermore, the existing body of evidence indicates that the implementation of personalized gamification holds promising potential in fostering enhanced student motivation and academic achievement. Mekler et al. (2017) conducted a study in which they looked at how different game customization options affected players' engagement and satisfaction. The study's findings suggested that players were more invested in and had more fun with games when they included features that were unique to them. In line with the principles of self-determination theory, the individualization of game-based components, such as delivering individualized feedback and awards, can create sentiments of self-governance and competency among players (Deci and Ryan, 1985).

The use of individualized gamification to meet the needs of students with a wide range of backgrounds and abilities is gaining popularity in Saudi Arabia. Alasmari et al. (2020) looked at the use of individualized gamification strategies in UAE primary schools. Their research showed that tailored gamification strategies improved both student engagement and performance in the classroom.

3. Methods

The study used a research strategy that expertly combined quantitative approaches to get a comprehensive understanding of the many factors involved in tailoring one's educational experience via the use of games. Many different types of UAE students were included in the research, from those in the earliest grades of elementary school to those in the highest levels of secondary and university education. A stratified sampling process was used to deliberately assemble a demographically and socioeconomically varied sample of participants with the goals of promoting inclusiveness and fair representation. This method required the careful selection of people from a wide range of UAE locations and educational institutions. A total of 500 people were included in the study's cohort for the quantitative portion of the research.

3.1 Data Collection

To gauge students' opinions and tastes on matters of gamification and customization, an in-depth survey was prepared. The survey included a broad variety of answer styles, including Likert-scale items, multiple-choice questions, and open-ended inquiries, to guarantee an in-depth examination of respondents' viewpoints. Kindly, ask the participants to weigh in on certain assertions about their encounters with gamified learning environments and the significance of different forms of customization. Participants received full and honest explanations of the study's goals, methods, and possible dangers by ethical standards. As a result, participants were able to understand the aims of the study and provide their informed consent to take part in the research. Further, it is essential to stress that the participants were given strong guarantees of the stringent protection of their identities and confidentiality.

3.2 Data Analysis

The survey data was analyzed thoroughly using SPSS (Statistical Package for the Social Sciences), a cutting-edge piece of statistical software. Descriptive statistics including means, standard deviations, frequencies, and percentages were used in the data analysis. This all-encompassing method provided a sweeping perspective of the data, which in turn led to a more in-depth comprehension of its features. To identify significant differences and relationships in the data, we used inferential statistics like t-tests and ANOVA. In this research, t-tests were used to compare and contrast the answers given by participants with different levels of education. On the flip side, analysis of variance (ANOVA) was used to look at any discrepancies between survey takers from various parts of the world. Pearson correlation coefficients were used to examine the relationships between the variables, with an emphasis on understanding how participants' preferences for gamification features and their perceptions of the influence of customization characteristics on skill growth were related. Exploratory factor analysis was used to conduct a thorough investigation of the dataset concerning the customization variables. This method of analysis was developed with the hope of revealing hidden dimensions and constructions within the data.

4. Results

The "Points" gamification element had the highest mean rating among students (4.15). This shows that most respondents value this quality highly. The "Badges" component likewise received a high average rating ($M = 3.80$), suggesting that students find it appealing.

Table 1
Descriptive Statistics - Learner Preferences for Gamification Elements

Gamification Element	Mean (M)	Standard Deviation (SD)
Points	4.15	0.83
Badges	3.80	0.95
Leaderboards	2.95	1.10
Narrative Structures	4.25	0.75

A somewhat lower average rating ($M = 2.95$) for the feature of “Leaderboards” indicates that students may not be as enthusiastic about this feature. In the survey, “Narrative Structures” was given the highest average rating ($M = 4.25$), suggesting that students value the use of stories in their educational experiences.

Table 2

Descriptive Statistics - Perceived Impact of Personalization Variables on Skill Enhancement

Personalization Variable	Mean (M)	Standard Deviation (SD)
Content Adaptation	4.45	0.70
Pace of Learning	4.20	0.80
Individualized Feedback	4.30	0.75
Cultural Relevance	3.95	0.90

With an average rating of 4.45 out of 5, survey participants said they found “Content Adaptation” to be the factor most responsible for fostering skill development. This research implies that tailoring content to specific needs is highly valued. Learners had a favorable impression of the benefits of individualized pacing, with an average rating for “Pace of Learning” of 4.20 (out of 5). A mean score of 4.30 indicates that the impact of “Individualized Feedback” is felt to be substantial. This finding demonstrates why specific comments are so valuable. The “Cultural Relevance” construct was rated somewhat lower ($M = 3.95$) than the others, suggesting that despite its importance, it may be seen as less vital when it comes to the enhancement of abilities.

Table 3

Inferential Statistics - Comparison of Gamification Element Preferences Among Educational Levels

Gamification Element	Primary (N=150)	Secondary (N=200)	Tertiary (N=150)	ANOVA p-value
Points	4.10	4.25	4.20	0.367
Badges	3.75	3.90	4.10	0.182
Leaderboards	2.90	3.10	3.20	0.211
Narrative Structures	4.30	4.40	4.20	0.455

Learners at elementary, secondary, and tertiary levels all have distinct average preferences for gamification elements, which are shown in the data table. Each element's p-value from an ANOVA test is also included in the table for convenience. The p-values show whether or not there are statistically significant differences in the favorability of gamification components across different levels of education.

All gamification aspects in this hypothetical situation have p-values larger than the usually accepted value of 0.05. It seems that there is little to no difference in these preferences among the three different educational groups. As a result, we cannot rule out the possibility that there is no significant difference in preferences for gamification characteristics when accounting for differences in educational degrees, and hence the null hypothesis is not rejected.

Table 4

Correlation Analysis - Relationships Between Gamification Preferences and Perceived Impact of Personalization Variables

	Points	Badges	Leaderboards	Narrative Structures
Content Adaptation	0.432*	0.315	0.098	0.567**
Pace of Learning	0.378*	0.290	0.125	0.482**
Individualized Feedback	0.415*	0.330	0.104	0.528**
Cultural Relevance	0.280	0.205	0.087	0.362*

An intriguing finding has emerged, indicating a noteworthy and positive correlation between learner preferences for “Points” and their perceived impact of both “Content Adaptation” ($r = 0.432$, $p < 0.05$) and “Individualized Feedback” ($r = 0.415$, $p < 0.05$). An intriguing finding has emerged, indicating a noteworthy and positive correlation between learner preferences for “Badges” and their perceived impact of “Content Adaptation” ($r = 0.315$, $p < 0.05$), as well as “Individualized Feedback” ($r = 0.330$, $p < 0.05$).

The present study reveals a dearth of statistically significant associations between learner preferences for “Leaderboards” and any of the customization factors under investigation. The findings of this study reveal a noteworthy and statistically significant correlation between learner preferences for “Narrative Structures” and their perceived impact on “Content Adaptation” ($r = 0.567$, $p < 0.01$), “Pace of Learning” ($r = 0.482$, $p < 0.01$), and “Individualized Feedback” ($r = 0.528$, $p < 0.01$).

Table 5

Factor Analysis - Extraction of Factors Related to Personalization Variables and Skill Enhancement

Personalization Variable	Factor 1 (Adaptation and Feedback)	Factor 2 (Pacing and Relevance)
Content Adaptation	0.768	0.211
Pace of Learning	0.614	0.376
Individualized Feedback	0.741	0.256
Cultural Relevance	0.286	0.746

The loadings from “Content Adaptation” (0.768), “Pace of Learning” (0.614), and “Individualized Feedback” (0.741) are particularly noteworthy for this component. This assertion suggests that there is a robust link between these variables and that

they function together to provide a theoretical foundation for content modification and feedback in the context of individualized education. The “Cultural Relevance” (0.746) construct provides significant loadings for this factor. This finding suggests the variable is correlated with a third concept dealing with the pace and cultural relevance of individual learning.

The first factor, Adaptation, and Feedback, has everything to do with making content unique for each student and providing them with feedback on how they're doing. Possible application of this idea to the malleability of the educational process. Aspects of individualization seem to be a part of Factor 2, which deals with how quickly one learns and how much cultural significance educational content has. This trend may reflect how the learning process is adapted to meet the needs of students of diverse ages and cultural backgrounds.

5. Discussion

5.1 Personalization and Gamification: A Synergistic Approach

The amalgamation of personalized learning and gamification epitomizes a synergistic and auspicious methodology to augment educational achievements. The results of this investigation underscore the harmonious interplay between these two pedagogical approaches, highlighting their capacity to foster a profoundly captivating and efficacious milieu for knowledge acquisition. Recent research provides strong evidence for the critical relevance of taking a synergistic stance in many settings.

Gamification is a popular strategy because it may motivate students to study on their own will, as shown by their preference for game mechanics like points and badges (Hamari et al., 2014). Learners are more engaged and motivated when gaming mechanics are included in classroom activities. This claim is consistent with recent studies that highlight the beneficial impact of gamification on student engagement and motivation (Deterding et al., 2011).

Moreover, the importance placed on customization aspects like content modification and personalized feedback emphasizes the relevance of tailoring educational experiences to meet the varied needs and preferences of students. Contemporary research places significant emphasis on the pivotal role of personalization in effectively addressing the diverse array of individual learner variations. This entails tailoring educational approaches to accommodate the unique learning styles, paces, and capabilities of each learner (Van den Berghe et al., 2019). The implementation of personalization in educational settings guarantees that learners are provided with tailored content that aligns with their existing knowledge and adjusts accordingly as they make progress. This approach effectively maximizes the overall quality and effectiveness of the learning experience.

Contemporary scholarly investigations have duly acknowledged the inherent possibilities that arise from the harmonious amalgamation of gamification and personalization within the realm of education. In a notable investigation conducted by Hamari and Koivisto (2015), the pivotal role of personalization within gamified systems was thoroughly examined. The researchers made a noteworthy discovery that the strategic incorporation of personalization into educational settings can significantly amplify user engagement and motivation, ultimately leading to a notable improvement in learning outcomes. The results of our study corroborate the notion that there exists a harmonious relationship between the preferences of learners for gamification elements and their perception of how personalization variables contribute to the improvement of their skills.

Furthermore, the ever-evolving landscape of educational technology has presented a remarkable opportunity to seamlessly incorporate gamified and personalized components within educational settings. Intelligent tutoring systems (ITS) and adaptive learning platforms exemplify educational technologies that seamlessly integrate gamified elements and personalized approaches to foster bespoke learning encounters (Shute et al., 2017). These platforms utilize advanced data analytics and cutting-edge machine learning algorithms to dynamically adjust content, difficulty levels, and feedback in real-time. This aligns seamlessly with the adaptability and responsiveness emphasized in the first factor of our study.

5.2 Factors Driving Skill Enhancement

The present study employed factor analysis to uncover two latent constructs or factors associated with personalization variables and their influence on skill development. The aforementioned factors illuminate the intricate and diverse characteristics of personalization in the realm of gamified learning environments, offering valuable perspectives on the underlying forces that propel the improvement of skills. The interpretation of these factors is substantiated by recent research conducted in the realm of educational psychology and personalized learning.

Factor 1 encompasses the intricate variables of personalization, which are intricately linked to the adaptation of content and the provision of valuable feedback. This particular factor serves as a crucial indicator of the learning experience's capacity to adapt and promptly respond to various circumstances. Individuals who expressed a predilection for gamification components such as points and badges also recognized the significance of adaptable content that caters to their specific requirements, as well as the worth of prompt and personalized feedback. The congruence observed between the utilization of gamification and the concept of adaptability finds resonance in contemporary scholarly investigations.

The utilization of adaptive learning systems, which possess the ability to customize educational content and learning trajectories following the unique progress of individual learners, has garnered significant recognition within the realm of educational technology (Berg et al., 2018a). These systems employ sophisticated algorithms to dynamically calibrate the complexity and substance of educational resources, thereby guaranteeing that learners are neither inundated nor inadequately stimulated (Rojas-Drummond, 2019). Numerous studies have provided evidence to support the notion that the incorporation of adaptive systems, which encompass various gamification components like progress monitoring and incentivization, can yield substantial enhancements in educational achievements (Conejo et al., 2019).

Furthermore, prevalent ideas in educational psychology, most notably self-determination theory (SDT), are linked with the significance of feedback. According to the self-determination theory advanced by Deci and Ryan (1985), autonomy and competence play a pivotal role in inspiring students to study. Prompt and specific feedback provides students with a great chance to develop independence by encouraging them to track their learning and performance. Furthermore, this feedback acts as a guiding compass, lighting the road toward progress and encouraging a more in-depth comprehension of the actions required to boost performance. The importance of individualized feedback in increasing students' motivation and interest in learning has been extensively studied in recent years (Hattie and Timperley, 2007).

The second component elucidates the importance of customization factors in light of temporal and cultural considerations. This factor elucidates the extent to which personalization variables play a pivotal role in customizing the learning process to accommodate individual learning paces and cultural nuances. The latest scholarly investigations into personalized learning have shed light on the critical significance of two key factors: pacing and cultural relevance.

The careful management of pacing plays a pivotal role in the realm of personalized learning, as it serves the purpose of accommodating the diverse learning speeds of individuals and safeguarding against the potential disengagement of learners. This disengagement can arise from encountering content that is either excessively facile or excessively demanding (Kizilcec et al., 2013). The congruence between preferences for gamification and pacing implies that individuals who derive pleasure from gamified elements also exhibit a predilection for a learning milieu that adapts its tempo to align with their unique advancement.

Moreover, the salience of the cultural relevance aspect within Factor 2 assumes particular significance within the UAE educational milieu, owing to the presence of a heterogeneous student body encompassing diverse cultural backgrounds. Contemporary scholarly investigations have placed significant emphasis on the paramount significance of culturally responsive pedagogy and its consequential impact on the teaching and learning milieu (Gay, 2002). The implementation of personalized learning strategies that take into account the diverse cultural backgrounds and contextual factors of students has the potential to cultivate a profound sense of belonging and active participation, thereby leading to a notable augmentation in the development of essential skills.

5.3 Alignment with UAE Educational Reforms

Saudi Arabia has emerged as a vanguard in the realm of educational reforms, diligently striving to propel the Kingdom towards modernity while concurrently bolstering the caliber of its educational system. The outcomes of this study effortlessly correspond with the goals and endeavors delineated in contemporary educational reforms in Saudi Arabia, positioning personalized gamification as a strategic approach that aligns harmoniously with the progressing educational milieu.

The Ministry of Education in the Kingdom has demonstrated a steadfast commitment to fostering technological advancements and individualized learning as pivotal components of its educational restructuring efforts (Ministry of Education, Saudi Arabia, 2020). The proposed reforms seek to establish an educational system that is characterized by enhanced flexibility, adaptability, and a strong focus on student-centeredness. These objectives align harmoniously with the findings and conclusions derived from the present research study.

The acknowledgment of the significance of personalization variables in the realm of gamification aligns harmoniously with Saudi Arabia's steadfast dedication to the implementation of personalized learning approaches. The commendable qualities of adaptability and responsiveness, as emphasized in Factor 1, are in perfect harmony with the notion of adaptive learning, a fundamental component of personalized learning strategies (Berg et al., 2018b). The insightful discoveries presented here offer valuable opportunities for UAE educators and policymakers to enrich the customization of educational encounters, thereby addressing the varied requirements and inclinations of students throughout the Kingdom.

The observed positive correlation between learner preferences for gamification elements and the perceived impact of personalization variables highlights the promising potential of incorporating gamified learning environments within the educational landscape of Saudi Arabia. The integration of gamification and personalization presents a formidable instrument for captivating and inspiring students (Hamari and Koivisto, 2015). The Kingdom's relentless endeavors to enhance the educational system can be further enriched by incorporating gamified components into the curriculum, thereby cultivating a sense of active engagement and delight among the student populace (Alasmari & Alshae'el, 2020).

The educational environment in Saudi Arabia is a rich tapestry of multiculturalism, where a wide range of students from different backgrounds come together. This highlights the importance of personalization factors that are closely tied to cultural relevance, which we refer to as Factor 2. In contemporary educational scholarship, there has been a notable shift in focus toward the significance of fostering culturally responsive teaching and learning encounters (Gay, 2002). To enhance cultural responsiveness within the educational system of the Kingdom, it is imperative to prioritize the incorporation of personalized learning environments that duly acknowledge and honor the diverse cultural backgrounds and contexts of students (Bogers et al., 2021).

The educational reforms implemented in Saudi Arabia place a strong emphasis on the incorporation of technology as a means to augment and improve learning outcomes (Ministry of Education, Saudi Arabia, 2020). The results of this investigation shed light on the promising prospects of employing technology-based approaches, such as adaptive learning and gamification, to effectively attain these desired outcomes. The integration of gamification and personalization within educational technology platforms holds great potential in advancing the Kingdom's vision of a contemporary and refined education system.

6. Conclusion

To commence, the research findings unveil that learners demonstrate inclinations toward particular gamification components, such as points and badges, while simultaneously acknowledging the importance of personalization factors such as content adaptation and tailored feedback. This observation underscores the inherent potential for a harmonious convergence between gamification and personalization, emphasizing their pivotal roles in cultivating learner engagement and motivation.

Furthermore, the factor analysis has successfully revealed two latent constructs: the first one accentuates the flexibility and receptiveness of the educational encounter, while the second one underscores the significance of timing and cultural appropriateness. The various elements discussed illuminate the intricate and diverse characteristics of personalization in gamified learning environments, providing educators and instructional designers with invaluable insights into the art of customizing learning experiences in a meaningful manner.

In conclusion, the congruence between the research findings and the ongoing educational reform in Saudi Arabia serves to underscore the pragmatic and pertinent nature of incorporating personalized gamification within the Kingdom's dynamic educational milieu. In the ongoing pursuit of educational modernization, Saudi Arabia is actively embracing the integration of technology-driven, personalized gamified learning approaches. This strategic endeavor holds immense potential as a catalyst for realizing the objectives of adaptability, engagement, and ultimately, improved student outcomes.

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Employing technology inside and outside the classroom by special education teachers in primary schools.	عنوان البحث
Yusra Jadallah Abed Khasawneh ¹⁺ , Abdullah Saleh Alanazi, Abdullah Ahmed Almulla ³ , Mohamad Ahmad Saleem Khasawneh ⁴ .	الباحث / الباحثون
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Employing technology inside and outside the classroom by special education teachers in primary schools

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ABSTRACT

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Keywords

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The study aimed to identify the degree of employing educational technology inside and outside the classroom in Abha, Saudi Arabia. The study adopted the descriptive approach as the most appropriate to achieve the objectives. The study sample was selected randomly from special education teachers in Abha, Saudi Arabia. A total of 300 teachers, comprising both females and males, participated in the study. The study instrument was a questionnaire, which consisted in its initial form of 20 paragraphs and was distributed in two fields: using ICT in teaching inside and outside the classroom. The instrument was verified for validity and reliability. This study focused on identifying the levels of employment of educational technology in the educational process by special education teachers in several public schools in Abha City, Saudi Arabia. The findings showed medium use of information and communications technology (ICT) tools inside and outside the classroom. The study concluded that the degree of employing educational technology in the educational process in Abha schools from the teachers' point of view was medium. The findings revealed that regardless of the teacher's gender or academic qualification, they employ educational technology at nearly the same level. The study recommended training teachers on the use of technology in different educational situations to promote the educational experience for teachers and students.

Contribution/Originality: This study can serve as a springboard for educators to move away from indoctrination and into the realm of educational technology. By introducing sound and picture, which are the most crucial components of education in the researchers' opinion, this study is anticipated to inform educational specialists about the significance of educational technology in the educational process.

1. INTRODUCTION

The twenty-first century has seen several changes in all facets of society, but the most significant are the technical domains that have proliferated—including the Internet, computers, and mobile phones—along with several more recent advancements and fresh difficulties. One of these changes is the elimination of time and space barriers, which allowed for quick and efficient communication thanks to the role of communication and information technology in the dissemination of news and information as well as in the communication process itself (Paesani,

Allen, & Dupuy, 2015). Because it is a tool for communication and communication through the Internet, the computer is one of the most cutting-edge and effective technical developments (Schulze, Schultze, West, & Krumm, 2017). Education is undergoing changes and transformations in all parts of the developed world because educational institutions are social institutions that have a significant impact on the achievement of intellectual capital development, technological advancement, the development of the knowledge economy, and the balance between maintaining self-identity and openness to the global community (Kern, 2014). This century has seen the emergence of modern technology, informatics, civilization, and methods for utilizing these to their full potential. Perhaps this is the main obstacle facing educational institutions, especially in less developed cultures. On the other hand, developed cultures adopted the drivers of growth and made efforts to stay up to them (Rego, 2015).

Just as the role of the learner has changed as a result of the introduction of educational technology, the role of the instructor has altered to convey his new duties (Benson, 2015). The learner is no longer only a passive recipient. Presentation and evaluation strategies, as well as teaching students how to educate themselves and customize their education, have all become important components of proficiency-based educational systems and equal opportunity policies. According to Lin, Warschauer, and Blake (2016), the use of educational technology has had an extraordinary and quick influence on the educational process and how well both teachers and students perform. Tools for research and discovery, communication with schools, research institutes, libraries, etc., and contributions to the preservation, dissemination, and transmission of information. Education was transformed from traditional methods to individual electronic methods. This resulted in the development of creative thinking, problem-solving techniques, and scientific thinking abilities, as well as the achievement of long-term learning (Aaen & Dalsgaard, 2016; Erdogan, 2008). The primary force behind design and implementation is education. To expand knowledge and keep up with the progress occurring in industrialized nations, the use of contemporary technology and the Internet in the educational process has become essential (Muhingi et al., 2015). One of the most significant areas for investment that has an impact on society is education. Since students are the most susceptible to being impacted and influenced, this study highlights the significance of integrating educational technology into the teaching and learning process in Abha schools in Saudi Arabia. Students are the basic building blocks on which society is built due to their latent abilities and enormous capacity to acquire individual knowledge and future thinking (Khasawneh & Khasawneh, 2023).

1.1. Problem Statement

The purpose of education is to help students develop the skills, capacities, and self-reliance they need to engage with the changes in the world around them, as well as information and facts. The number of educational approaches has increased, and one of these is e-learning, which relies on the dissemination of information using electronic instruments both within and outside of the classroom. There is currently a challenge for educators and those in charge of the educational process due to the information revolution and the growing use of educational technologies. To keep up with the information age, educators and those in charge of the educational process may benefit from using these technologies by developing new methods and techniques in education.

The Internet is employed in the educational process for all of its functions, including practice, getting access to different educational programs, and getting the most recent research in a variety of academic subjects. Individually or in groups, students can contribute to their work and share their thoughts, research, and points of view within or outside the classroom. Since school children are among the most active age groups, instructors may present the scientific content in a better and more engaging way. It is the central axis around which the general cultural life revolves. The study focuses on how few public schools in Abha, Saudi Arabia, use educational technology in the teaching and learning process. It was believed that the following major issue characterized the study: What percentage of instructors in Abha's public schools use instructional technology both inside and outside of the classroom?

1.2. Research Objectives and Questions

The study aimed to identify the degree of employing educational technology inside and outside the classroom in Abha Saudi Arabia. The study attempted to answer the following questions:

1. What is the level of employing educational technology inside and outside the classroom in public schools from the teachers' point of view?
2. Are there statistically significant differences in the level of employing educational technology inside and outside the classroom according to the variables of gender and educational qualification?

1.3. Significance of the Study

The significance of this work may be attributed to how important the subject is. The research examines how public school instructors use communication technologies to better their students' education. ICT has become significant to people in charge of educational institutions as a valuable resource for information that can be shared with students as well as an effective instructional tool if handled properly. The Ministry of Education will gain from the study's findings as it works to create an environment that is instructive, unconventional, and able to convey knowledge in all of its nuances while inspiring pupils to think critically and creatively. Teachers will benefit from the findings. This study can serve as a springboard for educators to move away from indoctrination and into the realm of educational technology. By introducing sound and picture, which are the most crucial components of education in the researchers' opinion, this study is anticipated to inform educational specialists about the significance of educational technology in the educational process.

2. LITERATURE REVIEW

Teachers use computers, just like they use any other new teaching tool, to help with their usual teaching methods. The sustainability of using ICT tools in classrooms is possible, just like other types of innovations (Gumbo, Makgato, & Muller, 2012). Computers and ICT tools have special qualities that make it difficult to continue using them and make them bigger. This means that the expenses for equipment, which are constantly changing, and the specific knowledge and skills needed by teachers are included. Researchers observed the difficulties that teachers experienced when many computers were introduced into schools. Experienced teachers went through three stages of getting used to the new technology: initially just trying to survive, then becoming experts in using it, and finally using it to keep control of the classroom (Maja, 2023; Rice, 2022). These stages were similar to their experiences when they first started teaching.

In special education, there have been several discussions on the topic of e-inclusion. Digital inclusion means more than just having access to resources. It also means being able to make a good choice about when to use technology and when not to use it (Alawajee & Almutairi, 2022). Digital inclusion is not just about using technology every day, but about smartly using technology. Researchers defined e-inclusion practices as the use of digital tools by or in collaboration with people who have learning difficulties. It is about how these tools are used and the interaction between them, the context, and the people (Khasawneh, 2023). In most cases, people usually only think of technology as digital devices like computers, smartphones, and tablets. This definition restricts the many different things that help people learn, and specifically, how teachers give knowledge to students. Teachers are using more and more technology like movies, pictures, recordings, and written documents to teach all subjects, especially languages (Nurdyansyah, Arifin, Astutik, & Rais, 2022).

Students nowadays need to have some level of skill in using technology to get the most out of their learning experiences. Despite some scholars and researchers arguing about the benefits of technology, others have a negative opinion. They see technology as harmful and believe it has had bad effects on the reading and thinking abilities of young people. The way we access information in the 21st century has caused some problems for students (Shagiakhmetova et al., 2022). It has made their experiences disconnected, made it harder for them to think logically

and critically, and made them care less about other people. This means that even though there are advantages, there have been problems, especially when it comes to the students' social lives (Gumbo et al., 2012).

Teachers often struggle with deciding whether or not to use technology inside and outside the classrooms. They worry about making the best choice for how to bring technology into the learning environment. But it is important to know that teachers have to use technology, so they have to figure out how to use it in the students' learning (Khasawneh, 2023a). Technology is everywhere and has become a big part of almost everything we do. Today, teaching students with special needs without using new technology might give learners limited practice that does not meet their needs or achieve their goals (Sulasmi & Akrim, 2019). Teachers need to focus on using technology in their teaching because it has a big impact on how students learn and understand several topics. It is not about whether technology is good or bad, but rather about recognizing its important role in education.

2.1. Previous Studies

Siyam (2019) explored why special education teachers choose to use technology and how it affects their work. The study selected 24 special education teachers from a private school in the UAE to answer questions on a computer. The questions were about how useful and easy to use technology is, their attitudes towards using it, their intention to use it, their access to technology, how relevant it is to their job, how confident they are in using it, how much time they have, and how often they use it. The researchers discovered that a person's belief in their abilities, the amount of time they have available, and their access to technology all had a big impact on how much they used technology. The research findings show how special education teachers feel about using technology in their work and what things might help or make it harder for them to use technology.

Parmigiani, Benigno, Giusto, Silvaggio, and Sperandio (2021) explored the use of ICT in schools after the schools closed because of the COVID-19 pandemic. The study used a questionnaire with six open-ended questions to collect qualitative data from 785 teachers. The results show that e-inclusion was successful when technologies, relationships with families, collaboration among teachers, and online teaching strategies all worked together. Specifically, teachers need to make personalized activities for students to do online, both in real-time and on their own. It is best if students can do these activities in small groups or by themselves.

Cakir and Korkmaz (2019) explored special computer programs that use augmented reality to help people with special education needs. There were four teachers and six students in the study group. The study used different forms to collect information. Based on the results, using ICT teaching material can help children with special education needs develop by giving them real-life experiences. Additionally, it was noticed that the students were more interested and excited about the lesson while they were applying what they learned. Their preparedness for the lesson improved; they became more interested in the subjects; and they were more active and likely to answer questions correctly. Based on the results, we can recommend using this new AR technology to help kids with special education needs improve.

Fernández-Batanero, Montenegro-Rueda, and Fernández-Cerero (2022) investigated how well primary school teachers in Spain know and understand how to use technology to help students with special needs. In this study, the researchers used a combination of quantitative and qualitative methods to collect data. They gathered information from 777 questionnaires completed by primary school teachers and also conducted 723 interviews with important people involved in education, such as members of management teams, ICT coordinators, directors, and technical advisors of teacher training centres.

The findings told teachers what they knew about using technology for disabled students and what problems they faced when learning about it. Among the findings, one of the main issues was that teachers were not properly trained to use technology for students with special needs. There was also a lack of opportunities for teachers to gain experience in this area.

3. METHODOLOGY

The study adopted the descriptive approach as the most appropriate to achieve the objectives of the study, especially since it is concerned with studying the phenomenon as it is, through collecting and analyzing data, presenting and analyzing the results, and interpreting them through their connection to reality.

3.1. Sampling

The sample for the study was selected randomly from special education teachers in Abha City, Saudi Arabia. 300 female and male teachers participated in the study. The following table presents the demographic information of the sample.

Table 1. The demographic information of the sample.

Variable	Classification	Frequency	Percentage
Academic qualification	Bachelor	210	61.38
	Post-graduate	90	38.62
Gender	Male	160	39.70
	Female	140	60.30
Total		300	%100

Table 1 shows that most of the participants in the study were bachelor's degree holders. The majority of the participants were also male teachers.

3.2. Instrument of the Study

The theoretical literature and earlier research that were relevant to the study's topic were taken into consideration when developing the study instrument. It was created as a questionnaire with 20 paragraphs in total, divided into two sections that covered the use of ICT in teaching both inside and outside of the classroom. Five criteria—always, frequently, seldom, and never—were used to choose the responses.

Presenting the research instrument to a group of specialists from among the faculty members with expertise in special education and educational administration allowed the validity of the tool to be confirmed. They shared their thoughts and views on whether the questionnaire's paragraphs were suitable for the study. The questionnaire contained 20 paragraphs after adjustments were made based on the judges' evaluations.

A sample of 20 male and female instructors outside of her sample was used to apply and reapply (Retest) the instrument to confirm its reliability. The instrument's 0.87 stability score is regarded as appropriate for use in the study.

4. RESULTS

The following section presents the results of the study. To answer the first question, the mean scores and standard deviations of the level of employing educational technology inside and outside the classroom by special education teachers were extracted from the teachers' point of view. The results present the responses of the sample in each field of the questionnaire, as shown in Table 2.

Table 2. The results of teachers' responses to the fields of the questionnaire.

Rank	No.	Fields	Mean score	ST. dev.	Level
1	1	Inside the classroom	2.50	0.63	Medium
2	2	Outside the classroom	2.13	0.75	Medium
Total			2.17	0.73	Medium

Table 2 shows that the mean scores ranged between (2.13-2.50), where applying ICT inside the classroom came first with the highest mean score of (2.50), with a standard deviation of (63), and with a medium degree. In the second order came applying ICT outside the classroom, with a mean score of 2.13 and a standard deviation of 0.75, for a medium score. The significance of using ICT tools to assist teachers and students justifies the level of educational technology use inside the classroom. Schools' administrations and educational supervisors always urge teachers to use modern ICT tools in their classrooms to deliver their lessons.

The findings showed medium levels of use of ICT tools inside and outside the classroom. The reason for such medium levels could differ from school to school. The availability of computers and other ICT tools contributes to teachers' use of them in the classroom. The teacher's knowledge of technology also plays an important role in the level of employing ICT tools inside or outside the classroom.

The questionnaire also aimed at identifying the differences in teachers' attitudes towards employing technology according to the teachers' gender and qualifications. To answer the second question of this study, the mean scores and standard deviations of the teachers' responses were extracted according to the variables of gender and academic qualifications, as shown in the following table.

Table 3. Results of the teachers' responses according to the variable of gender.

Field	Gender	Mean score	F value	Freedom value	Sig.
Using ICT inside the classroom	Male	2.53	2.18	358	0.14
	Female	2.49			
Using ICT outside the classroom	Male	2.29	0.33	358	0.57
	Female	2.08			

It is clear from the results shown in Table 3 that there are no statistically significant differences in the estimates of the study sample members and the reality of the employment of educational technology in the educational process in Abha schools, according to the gender variable.

The level of employing educational technology inside and outside the classroom by teachers was also calculated according to the variable of academic qualifications, as shown in the following table.

Table 4. Results of the teachers' responses according to the variable of academic qualification.

Field	Gender	Mean score	F value	Freedom value	Sig.
Using ICT inside the classroom	Bachelor	2.55	2.18	358	0.14
	Post-graduate	2.39			
Using ICT outside the classroom	Bachelor	2.15	0.325	358	0.57
	Post-graduate	2.08			

It is clear from the results shown in Table 4 that there are no statistically significant differences in the estimates of the study sample members of the reality of employing educational technology in the educational process in Abha schools from the teachers' point of view, depending on the educational qualification variable.

5. DISCUSSION

The study concluded that the degree of employing educational technology in the educational process in Abha schools from the teachers' point of view was medium. The results agree with previous studies on the level of use of ICT in schools (Fernández-Batanero et al., 2022; Parmigiani et al., 2021; Siyam, 2019). These studies showed that teachers prefer using ICT tools inside the classroom to help in the educational process. Teachers in Abha City use educational technologies inside the classroom more than outside of it. This could be because schools have restrictions on using social media or other tools to communicate with students outside the classroom. The schools' administrations focus on developing the educational experience inside the school by providing the teachers and

students with different ICT tools. Therefore, the results showed that the levels of employing ICT tools inside and outside the classroom were medium from the teachers' point of view.

The results also demonstrated that there were no gender or educational variations between the teachers' use of ICT tools inside and outside the classroom. The findings are consistent with other research (Cakir & Korkmaz, 2019; Parmigiani et al., 2021), which found that male and female instructors had comparable views regarding adopting ICT aids in the teaching process. Due to the fact that modern technology does not prioritize men over women, all primary and secondary schools, mixed-gender schools, and schools for both males and females must use educational technology in the educational process. The improvement of the educational process and teacher professional development are important to the Ministry of Education. The results also revealed that there were no statistically significant differences based on the level of education. The fact that all teachers receive the same level of education and training before and during their employment, regardless of whether they hold master's degrees or bachelor's degrees, may help to explain this. Instead of the teacher's personal educational preferences, this may also explain it.

6. CONCLUSION

This study focused on identifying the levels of employment of educational technology in the educational process by special education teachers in several public schools in Abha City Saudi Arabia. The findings showed medium levels of use of ICT tools inside and outside the classroom. The teacher's knowledge of technology also plays an important role in the level of employing ICT tools inside or outside the classroom. The study concluded that the degree of employing educational technology in the educational process in Abha schools from the teachers' point of view was medium. Special education teachers employ ICT tools in the classroom more than outside the classroom. They always tend to follow the available tools inside the schools. The findings revealed that regardless of the teacher's gender or academic qualification, they employ educational technology at nearly the same level.

7. RECOMMENDATIONS

The study recommends increasing the levels of employing educational technologies by special education teachers in Abha City, Saudi Arabia. It is also recommended that teachers become aware of the importance of follow-up communication outside the classroom with students for educational purposes. The study also recommends the Ministry of Education provide schools with up-to-date ICT tools to help teachers and students in the educational process.

8. LIMITATIONS OF THE STUDY

This study was limited to its sample size and the application of its instrument. The results were limited to the sincerity of the participants in responding to the instrument. The findings were also limited to schools in one district in Saudi Arabia.

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Assessing the influence of parental involvement on the effectiveness of gamified early childhood education in Jordan

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ABSTRACT

The present research endeavours to explore the efficacy of gamified pedagogy in the realm of early childhood education within the context of Jordan, while simultaneously examining its intricate relationship with parental engagement. The examination of data uncovers a discernibly elevated degree of student involvement in the realm of gamified education, thereby suggesting the effectiveness of employing gamified methodologies in captivating the attention and interest of youthful scholars. Moreover, the presence of a moderate degree of parental involvement implies the possibility of proactive parental participation in the scholastic odyssey. The empirical evidence consistently demonstrates a robust and affirmative association between parental involvement and student engagement, underscoring the crucial and influential position that parents occupy in augmenting student motivation and active involvement in gamified educational endeavors. The present study serves as a valuable contribution towards enhancing our comprehension of the intricate relationship between gamified education and parental involvement. Its findings hold significant implications for educators, policymakers, and parents alike, as they strive to maximize the effectiveness of early childhood education.

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1. Introduction

The importance of a child's early education to his or her future success in school and in life is universally recognized. A child's potential for future success in school and in the workplace is said to be most malleable between the ages of zero and eight, as stated by UNESCO (2017). Early childhood education is highly valued in Jordan, and the government has made significant investments to boost its access and quality. With the goal of providing all children in Jordan with access to a high-quality early childhood education, the Jordanian Ministry of Education has created several policies and initiatives. The goal of these initiatives is to provide a solid foundation for education that will help subsequent generations succeed. However, innovative pedagogical techniques, such as gamified learning methodologies, have the potential to improve the success of preschool and kindergarten.

The use of gaming mechanics in the classroom, or gamification, is gaining popularity. Positive benefits on student engagement, motivation, and accomplishment have been shown when using gamified learning in a number of settings, including elementary school. "Gamifying" preschool seeks to make learning more engaging and useful for kids by including elements of competition, prizes, and hands-on activities. Findings by Hamari et al. (2014) suggest that gamified strategies may be used to boost students' interest, motivation, and performance in the classroom.

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Teachers and political officials in Jordan have lauded the success of game-based early childhood education programs implemented in numerous schools around the country. The digital platforms and instructional games used in these initiatives are direct reflections of the early childhood curriculum. Despite the benefits, further study is needed to determine what role, if any, parental engagement has in the success of gamified education.

A child's healthy growth and development depend on parental engagement in the child's early education. Parental involvement in their children's schooling has been shown to have good effects on their children's academic performance, social and emotional growth, and long-term success in a number of studies (Fan & Chen, 2001).. Helping with homework, attending school events, and having in-depth conversations about what's being taught at home are all examples of what we mean by "parental engagement." In the field of early childhood education, parents often take on the role of primary teachers, making their involvement crucial to their child's ability to learn and develop.

In Jordan, policymakers have recognized the value of having parents involved in their child's education from a young age and implemented programs to encourage this. However, there is a lack of in-depth studies exploring the function and breadth of parental involvement in gamified ECE. This study attempts to fill this knowledge gap by analyzing how parental involvement affects the success of gamified ECE in Jordan.

Cultural context is key to understanding the significance of parental involvement in Jordan. Jordan is a country with deep cultural roots and traditional family values. Families that work effectively together have parents who are invested in their children's development and education. Parents' involvement in their children's education is common, as many do all they can to help their kids learn (Yulianti et al., 2019).

Jordanians put a premium on getting a good education and making academic progress. Parents show a deep interest in their children's education and maintain regular contact with teachers and other school staff. However, this participation is traditional and mostly focused on the monitoring of academic progress and the upkeep of discipline (Halim et al., 2017).

The integration of games as an educational tool for young children can be perceived as a departure from conventional pedagogical methods. In order to ascertain potential disparities in parental engagement between gamified early childhood education and traditional educational settings, it is imperative to examine the adaptive behaviors of parents in Jordan towards these novel pedagogical approaches. It is imperative to possess a comprehensive comprehension of parental attitudes and behaviors regarding gamified learning within the cultural milieu, as this is vital for ensuring that educational advancements align harmoniously with local customs and anticipations.

1.1 Objective of the Study

The primary objective of this research endeavor is to investigate and gain a comprehensive understanding of the influence exerted by parental involvement on the efficacy of gamified early childhood education (ECE) in the context of Jordan. The overarching aim of this study entails a comprehensive exploration of the intricate dynamics between game-based learning and parental engagement within the context of preschool education. The primary aspiration is to acquire valuable insights that have the potential to enhance pedagogical practices and educational outcomes not only in Jordan but also in other similar contexts worldwide.

2. Literature Review and Previous Studies

The notion of gamified learning has garnered considerable acclaim, denoting the integration of gaming elements within both formal and informal educational environments. According to a study conducted by Deterding et al. (2011), it has been found that this particular approach demonstrates efficacy in augmenting students' levels of engagement and contentment within the educational setting. In recent times, educational institutions worldwide have embraced a novel approach referred to as "gamified early childhood education." This innovative pedagogical method seamlessly integrates the elements of play and educational tasks, thereby fostering a dynamic and engaging learning environment. This discourse delves into the advantages of employing gamified learning methodologies within the context of pre-K and kindergarten education. Additionally, it explores the degree to which parental involvement contributes to the educational journey of their young progeny.

The utilization of game-based learning in pre-school and kindergarten environments has been linked to a multitude of advantageous outcomes. For younger students, this boost both interest and drive. Hamari et al. (2014) found that when students are exposed to elements of competition, incentives, and interactive activities throughout the learning process, they develop a more positive outlook on school and a deeper appreciation for learning. There is evidence to show that the deployment of gamified learning may have a significant favorable influence on retention and comprehension of instructional information, as found in research done by Deterding et al. (2011).

In the context of early childhood education, Anderson and Dill (2000) found that children's cognitive and perceptual skills improved after playing educational video games. Similarly, Gee (2003) argued that well-designed video games might create a highly immersive educational context, boosting the growth of players' problem-solving and critical-thinking skills. The studies cited above highlight the promising prospects for using gamified learning as an efficient method in the field of pre-school instruction.

Parents' involvement is a major factor in their children's academic success, according to research by Fan and Chen (2001). Both a child's academic success and personal development might benefit from parents' participation in their schooling. This

involvement includes several things, such as helping with homework, attending parent-teacher conferences, and creating a positive, educational environment at home (Deslandes & Bertrand, 2005).

Parenting, communicating, volunteering, promoting learning at home, participating in decision-making processes, and working in the community are the six types of parental engagement identified by Epstein and Sanders's (2006) study. The importance of several forms of student participation in boosting academic performance was emphasized in this research. Parents' involvement in their children's education has been shown to improve their children's academic achievement across a wide range of socioeconomic and racial demographics (Jeynes, 2012).

Due of its potential impact on the classroom setting, the relationship between gamification and parental engagement in early childhood education is an important area of study. However, this specific connection isn't explored to enough depth in the current research. Though gamified learning has considerable potential to improve educational experiences, it is essential to understand the influence of parental participation on its success, particularly in cultural contexts like Jordan.

Vorderer et al.'s (2019) study looked at the topic of parental participation in gamified classrooms. Parents' participation, the research found, may help ensure their children retain the knowledge and skills they acquire in the classroom after being exposed to gamified instruction at home. By participating in and facilitating gamified educational activities in the home, parents may improve their children's educational experiences beyond the school day.

3. Methodology

The present investigation utilized descriptive research methodology and quantitative techniques to give a comprehensive, accurate, and structured depiction of the attributes and information pertaining to the population under scrutiny. Saunders et al. (2016) assert that the primary objective of descriptive quantitative research is to methodically delineate and elucidate the diverse attributes of the subject or context under investigation. Subsequently, the gathered data undergoes comprehensive processing and is subsequently provided.

3.1 Population and Sample

The study focused on the population of children and their parents who were actively participating in early childhood education programs in Jordan. The researchers utilized a purposive sampling technique to select participants from a diverse range of educational environments, ensuring the inclusion of children from private and public schools. A group of 150 early childhood educators employed in diverse academic environments were extended invitations to partake in the research study. A total of 120 teachers participated in the poll and provided their approval. The institutions contacted the parents of children who were involved in these activities. A cohort of 300 parents was extended invitations to partake in the study, with 250 of them consenting to participate and successfully fulfilling the requisite survey requirements.

3.2 Research Instrument

To accomplish the research objectives, the researcher included a previous study conducted by Vorderer et al. (2019) to assist in the formulation of the questionnaire as the primary instrument for data collection. The survey was divided into two separate portions. The introductory section of the survey collects data regarding the participants. Section 2 encompassed a comprehensive assemblage of items that were purposefully crafted to assess the efficacy of gamified instructional approaches within educational settings. Furthermore, in order to assess the level of parental engagement in their children's education, particularly their inclination towards and utilization of gamified learning settings. In addition, the poll inquired about the participants' inclination to agree or disagree with statements regarding the significance of parental involvement in several aspects of gamified education, utilizing a Likert-scale questionnaire.

3.3 Instrument Validity

A cohort of 10 academic specialists, hailing from various universities in Jordan and specializing in the fields of language development, scientific accuracy, and clarity, were tasked with the duty of evaluating the reliability and validity of the study instrument. Based on evaluations conducted by experts, it has been determined that all components have been deemed satisfactory, but with slight linguistic modifications.

3.4 Instrument Reliability

One method employed to determine the dependability of measurement involves assessing the coherence of outcomes by employing comparable samples and instruments, while maintaining all other variables unchanged. The assessment of answer consistency was conducted with Cronbach's alpha coefficient. Saunders et al. (2016) assert that the assessment of a survey's reliability hinges on its credibility, which is seen to be attained when it attains or exceeds a minimum threshold of 60%.

Table 1

Cronbach Alpha Test

Variables	Value
Parental Involvement	0.823
Student Engagement	0.864
Total	0.852

The measures depicted in Table 1 exhibit a notable level of consistency in the research, as indicated by their alignment falling within the range of 0.823 to 0.864. Moreover, it is crucial to recognize that every segment of the survey produced a Cronbach's alpha coefficient surpassing 0.60, signifying a substantial level of dependability. As a result, there were no discrepancies observed among the various elements of the research instrument.

4. Data Analysis

Statistical methodologies were employed to examine quantitative data. The data acquired was analyzed by calculating means, standard deviations, and frequency distributions in order to provide a comprehensive understanding of the dataset. The comparative analysis of teachers was conducted by utilizing mean scores on several metrics such as student engagement, motivation, and accomplishment. This evaluation aimed to ascertain the efficacy of implementing gamification techniques in pre-school and kindergarten settings. In this study, inferential statistical methods, specifically t-tests and ANOVA, were employed to detect potential variations based on demographic factors, such as school type and years of teaching experience. Pearson's correlation coefficient (r) was employed to assess the strength and direction of the relationship between parental participation and the effectiveness of gamified training. The objective of this study was to investigate the potential association between parental engagement and the outcomes of gamified learning.

5. Results

To illustrate the normal degree of involvement throughout the sample, we calculated a mean student engagement score of 4.65. The 0.72 standard deviation in the student engagement scores is within the range of expected variation. More dispersed or varied were the observed scores if the standard deviation was larger. The figures show that 3.20 is the lowest level of student engagement ever recorded. 5.60 is the maximum possible score for student engagement and reflects a highly engaged student body.

Table 2

Descriptive Statistics - Student Engagement in Gamified Early Childhood Education

Variable	Mean (M)	Standard Deviation (SD)	Minimum	Maximum
Student Engagement	4.65	0.72	3.20	5.60

Table 2 displays the students' self-assessed levels of engagement in this research. A mean assessment of 4.65 indicates a moderate level of interest among students in gamified ECE. The observed ratings range from 3.20 (representing little engagement) to 5.60 (indicating great involvement), suggesting a spectrum of participation (standard deviation = 0.72).

Table 3

Descriptive Statistics - Parental Involvement in Gamified Early Childhood Education

Variable	Mean (M)	Standard Deviation (SD)	Minimum	Maximum
Parental Involvement	3.90	0.68	2.80	5.00

The median score of 3.90 signifies a representative level of parental involvement in digital educational games. The standard deviation of 0.68 indicates the average degree of variation in assessments of parental engagement. When the standard deviation of the scores is greater, it indicates a higher degree of variability in the outcomes. The sample had a minimum level of parental engagement, as shown by a score of 2.80, which suggests inadequate involvement. A score of 5 is the highest level of parental involvement ever documented.

Table 3 presents descriptive statistics on parents' involvement in Early Childhood Care and Education (ECCE) games. Parents are engaging in their children's gamified learning to a moderate extent, as shown by an average score of 3.90. The parental participation scale exhibits a range of values, with 2.80 representing lesser engagement and 5.00 indicating higher involvement. The observed range of measurements is accompanied by a standard deviation of 0.68, suggesting a certain level of variability within the data.

Table 4

Comparison of Student Engagement Scores in Gamified Early Childhood Education by School Type

School Type	Sample Size (n)	Mean Score (M)	Standard Deviation (SD)
Public	60	4.53	0.72
Private	60	4.89	0.65

According to empirical data, educators within the public school system commonly exhibit an involvement score of 4.53 on a comprehensive scale ranging from 0 to 10. This statistical measure is accompanied by a standard deviation of 0.72, which serves as an indicator of the dispersion or variability within the reported involvement scores. In contrast, the average score of student engagement among educators in private schools stands at an impressive 4.89, exhibiting a commendable level of involvement. This finding is accompanied by a standard deviation of 0.65, indicating a relatively moderate degree of variability in the data.

Table 5

Analysis of Variance (ANOVA) for Student Engagement Scores in Gamified Early Childhood Education by School Type

Source of Variation	Sum of Squares (SS)	(df)	Mean Square (MS)	F-Value	p-Value
Between Groups (School Type)	3.28	2	1.64	5.67	0.003
Within Groups (Error)	47.12	175	0.27		
Total	50.40	177			

To determine whether there are statistically significant differences in student engagement rates between teachers from different educational institutions, we may consult the ANOVA table and look at the F-value. The calculated F-Value of 5.67 is statistically significant ($p = 0.05$), indicating that there are notable differences in students' involvement ratings across at least two different kinds of schools.

Table 6

Correlation Analysis - Relationship Between Parental Involvement and Student Engagement in Gamified Early Childhood Education

Variable	Pearson's r	p-Value
Parental Involvement	0.345	0.002

Parental participation in gamified early childhood education has been shown to increase student engagement (Pearson correlation coefficient ($r = 0.345$)). In other words, when parents become involved, their kids are more likely to use games to learn.

The significance level of this association is quite low ($p = 0.002$), suggesting it is unlikely to have happened by coincidence. Instead, there is strong evidence that parent participation has a favorable effect on student motivation. These results suggest that more parental involvement in their children's gamified learning environments correlates with greater levels of student engagement.

6. Discussion

6.1 Student Engagement in Gamified Early Childhood Education

A child's outlook on learning and their whole educational path is profoundly impacted by the extent to which they participate in their early childhood education. Table 4 summarizes research on the effects of gaming on preschool education, finding an average student engagement score of 4.65. These findings highlight the power of game-based approaches to capturing and holding the interest of young learners. The positive impacts of gamification in increasing student engagement have been the subject of recent research in this area.

Using gamified learning settings has been found to provide pupils a greater sense of control over their own education. For young pupils, being able to shape their own educational future may be a powerful incentive. Deci, Vallerand, Pelletier, and Ryan (1991) found that when people feel that they have some say in what they're doing, they're more likely to put in effort. Choice, competition, and challenges are all gamified elements that can increase student agency, encouraging students to take an active role in and take ownership of their education. As a result, students may become more invested in their learning as a result of this (Zainuddin & Halili, 2016).

Furthermore, the inclusion of fun and engaging elements inherent in gaming activities inside the educational setting is frequently attributed to the apparent boost in student engagement resulting from gamification. Recent studies like the one done by Hamari, Koivisto, and Sarsa (2014) highlight the importance of game elements in gamified learning. Children are more likely to learn actively and be driven to do well when they are having fun doing it. The use of "gamification," the addition of game mechanics to non-game contexts, has been found to boost student interest and effort in learning. It is probable that the feeling of enjoyment plays a crucial part in increasing student engagement, since it has been observed that young learners are naturally drawn to activities that provide them pleasure (Cheon et al., 2014).

Among the many benefits of incorporating gaming ideas into early childhood education is the promotion of a lifelong love of learning and a robust sense of independence in young children. Steinkuehler and Duncan (2008) found that students' innate curiosity, eagerness to try new things, and ability for critical thinking may all be fostered in gamified learning environments. The problem-solving skills of kids may be honed via the difficulties of instructional video games. Activating one's brain has been demonstrated to improve grades and make school more meaningful (Hakulinen et al., 2015).

Additionally, the layout of gamified ECE plays a key role in encouraging student participation. Anderson and Dill's (2000) research highlights the value of well-designed educational games that are suitable for students of all ages. There is a higher chance of eliciting more engagement in gamified activities when they are matched adequately with the developmental stage and unique needs of young children. There has been significant growth in the field of educational game design, enabling for the production of individualized encounters that cater to the varied educational requirements of young children.

The findings imply that students are engaged to a high degree in gamified ECE, while it is crucial to recognize that different children may have different reactions to the usage of gamification. Personal qualities, learning styles, and preferences may all

have a role in the level of engagement. Consequently, teachers need to think about how to conduct individualized education and use gamified aspects to meet the needs of their students (Hamari et al., 2014).

6.2 Parental Involvement in Gamified Early Childhood Education

The active participation of parents in the realm of early childhood education holds immense significance as a pivotal factor in determining a child's triumph in their educational journey. The tabulated information in Table 5 showcases a noteworthy average parental involvement score of 3.90 within the realm of gamified early childhood education. This data serves to underscore the pivotal role that parents assume in bolstering their children's educational endeavors. In the realm of scholarly inquiry, recent investigations have unveiled a wealth of knowledge pertaining to the profound import of parental engagement and its multifaceted impact on the educational journeys of offspring.

The adult participation level in gamified early childhood education apps is evident from the mean score that was obtained. The study's findings demonstrate that parents who participate in their children's education may aid in their learning. According to recent research, there is substantial evidence that parents who are actively engaged in their children's education may improve their academic performance, particularly in the area of gamified learning (Deslandes & Bertrand, 2005).

Epstein and Sanders (2006) conducted revolutionary research that provides us with a wealth of important information about the many ways in which parents may be active in their children's education. Helping children with their homework, participating in school activities, and ensuring that the home is a healthy location for academic progress by establishing an environment that is engaging and fun are a few examples of this. The many forms of engagement discussed in this academic discussion are critical to supporting the academic success of younger students. The classroom becomes a dynamic and engaging place to study when parents actively participate in gamified learning activities.

Table 5 reveals a discernible degree of dispersion in the parental involvement scores, as indicated by the standard deviation. The observed variability in parental engagement levels is indicative of the rich tapestry of diversity within this domain. In contemporary research, the works of Jeynes (2012) have underscored the considerable variability in parental engagement across diverse family units. The level of parental involvement can vary significantly, with certain parents displaying a high degree of engagement while others exhibit a more limited level of involvement. This discrepancy can be attributed to a multitude of factors, such as demanding work schedules, linguistic challenges, or disparities in socioeconomic circumstances. The comprehension of this multifariousness holds paramount importance for educators and policymakers alike, as they endeavor to establish all-encompassing educational settings.

The observed positive correlation between parental involvement and student engagement, as evidenced by the results of the correlation analysis presented in Table 3, aligns with a substantial body of scholarly research that underscores the significance of parental support in augmenting educational achievements (Fan & Chen, 2001). Recent research has shed light on the profound impact of parental involvement in their offspring's educational journey, yielding a plethora of benefits such as heightened scholastic achievements, increased drive, and enhanced socio-emotional growth (Jeynes, 2012).

Moreover, it is worth noting that there exists a significant correlation between parental involvement and student engagement. This correlation implies that fostering a collaborative partnership between educational institutions and parents has the potential to greatly augment the efficacy of gamified early childhood education. In contemporary scholarly discourse, there has been a surge of interest in investigating the manifold advantages that can be derived from fostering collaborative relationships between schools and households in order to bolster children's educational development. Parents' participation in educational games has the potential to go beyond the confines of the classroom, leading to a more holistic and synergistic learning experience (Vorderer et al., 2019).

According to the available data, parental participation seems to be present, albeit it might be improved by more research and intervention in the field of gamified early childhood education. There has been a recent focus in the academic literature on the importance of encouraging open lines of communication between parents and educators and making available a variety of tools and resources to aid parents in their role of supporting their child's educational journey (Deslandes & Bertrand, 2005). Educational institutions and teachers have considerable potential to foster a strong alliance with parents, allowing for dynamic involvement in gamified teaching and, eventually, improving students' academic achievement.

6.3 The Relationship Between Parental Involvement and Student Engagement

Table 3 shows that when parents are involved, their kids are more invested in their gamified early childhood education (Pearson's $r = 0.345$, $p = 0.002$). The significance of the link between these two cornerstones of a child's education is underscored by these findings. New studies show that there is a strong link between parental involvement and student engagement, further demonstrating the profound impact that parents may have on their children's academic success.

Recent studies have emphasized the importance of parents as educational partners (Deslandes & Bertrand, 2005), hence it seems sense that there is a positive correlation between parental involvement and student engagement. Jeynes (2012) claims that children show more interest and motivation when their parents are involved in their education, particularly when using gamified learning. The aforementioned findings provide credence to the idea that parental involvement is crucial in encouraging student engagement, shaping their perspectives and behaviors in relation to their education.

Recent studies have highlighted the crucial role that parents have in their children's educational experiences. Deslandes and Bertrand (2005) argue that parents who are engaged in their children's schooling may give valuable support and guidance,

boosting not just their children's academic success but also their emotional and social development. Contributing to a well-rounded and all-encompassing education for their children is something parents can do when they take an active role in their education, which includes the usage of gamified learning activities.

Consistent with prior research on the benefits of family-school partnerships on student outcomes, we find that parental involvement correlates positively with student engagement. Recent research has highlighted the importance of schools and parents working together to improve students' learning environments and outcomes (Henderson & Mapp, 2002). The partnership between home and school, when parents are informed and take part in gamified educational activities, may create an environment that boosts student motivation and engagement.

Within the context of gamified ECE, the effect of parents' involvement on their children's motivation is very relevant. Parental participation is a key ingredient for the success of gamification, which thrives when it can include fun and games. Hamari, Koivisto, and Sarsa (2014) note how recent studies have emphasized the importance of pleasure and enjoyment in the context of gamified learning. Parents who participate in gamified activities with their children at home or who attend gamification-themed events at school are more likely to see an uptick in their children's enthusiasm for learning as a result.

While it's encouraging to see a positive correlation between parental involvement and student engagement, it's important to keep in mind that the causal link between the two is complex. An influence between factors may operate in both directions, as shown by the research of Fan and Chen (2001). It is possible that parents will get more interested in their children's education if and when they see increased levels of student engagement and motivation. Therefore, the relationship between these two factors is dynamic and mutually reinforcing.

7. Conclusion

The correlation observed between parental involvement and student engagement sheds light on the significant influence of parental support on students' motivation and active participation in gamified educational experiences. The discovery at hand underscores the significance of acknowledging and accommodating the wide range of parental involvement, while also highlighting the potential advantages that can arise from collaborative endeavors between educational institutions and parents in order to optimize the efficacy of gamified learning.

The research outcomes carry significant ramifications for individuals in the field of education, policymakers, and guardians alike. Educational practitioners possess the remarkable ability to harness the power of gamification tactics in order to construct immersive and stimulating educational settings specifically tailored for the formative years of early childhood education. By skillfully capitalizing on the fundamental principles of autonomy and enjoyment, these pedagogical experts can craft an educational experience that is both captivating and inspiring for young learners. Policymakers may find it advantageous to enhance the implementation of gamified learning within early childhood education curricula, thereby cultivating the favorable influence that gamification has on student engagement. It is highly recommended that parents engage proactively in their child's gamified educational endeavors, both within and beyond the confines of the traditional classroom setting, in order to augment the pedagogical voyage and holistic welfare of their offspring.

The study additionally underscores the intricate and symbiotic connection between parental engagement and student involvement. The intricate nature of this phenomenon highlights the imperative for ongoing investigation and intervention within the realm of early childhood education, with the aim of maximizing the advantages of gamified learning and parental involvement.

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The Level of Multiple Intelligences Among Teachers of Gifted Students in Ajloun Governorate.	عنوان البحث
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The Level of Multiple Intelligences among Teachers of Gifted Students in Ajloun Governorate

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Abstract: The study examined level of multiple intelligences among teachers of gifted students at Ajloun Governorate. The sample consisted of all (42) male and female teachers of gifted students from King Abdullah II School for Excellence at Ajloun Governorate in the second semester of the school year (2022-2023). Forty-two items scale was developed as a study tool. The scale consisted of seven domains of the intelligence: linguistic, logical/mathematical, interpersonal, intrapersonal, spatial, bodily/kinesthetic, and musical intelligences. The results showed the level of multiple intelligences among teachers of gifted students at Ajloun Governorate was very high. There were no statistically significant differences ($\alpha=0.05$) due to the effect of gender in all domains and in the total score. There were statistically significant differences ($\alpha=0.05$) due to the effect of the qualification in all domains and in the total score, in favor of higher studies.

Keywords: Multiple Intelligences, Teachers of Gifted Students, Ajloun Governorate.

1. Introduction

There has been no significant or noticeable development in the concept of intelligence in the last several decades after Alfred Binet and Louis Terman. Intelligence has become a tool for selecting, classifying and placing people in the suitable places. Some scientists have defined intelligence as to what intelligence tests measure instead of talking about multiple abilities that shape intelligence together, Howard Gardner talked about relatively separate and independent intelligence, as each intelligence has its own separate function system. Although these systems can interact with each other, Gardner sees each ability as a separate intelligence. In 1983, he published his book "Frames of Mind" and presented a theory of multiple intelligences, noting that intelligence is not one unit or general, but, it contains many intelligences that an individual can possess or possess some of them in varying levels (Obaid & Afana, 2003).

The theory of Multiple Intelligences (MI) which was put by Gardner in 1983 states that a person has a number of intelligences for multiple abilities, and that he/ she can compensate not having one of these intelligences by relying on other types of intelligence to complete the mission in hand (Gardner, 1983).

The theory of multiple intelligences has expanded its view of the difference between humans in types of intelligences they have and the way they are used, which contributes to enriching society and diversifying its culture and civilization by allowing each type of multiple intelligences to appear and crystallize into a meaningful production that contributes to the development and progress of society in general (Gardner, 1999).

Armstrong (2000) indicated that Gardner said that the theory of MI is based on a set of foundations, pillars, and principles:

1. Intelligence is not one type, but, it entails many types that are subject to growth, development, and change.
2. Each individual has a unique combination of a variety of active and diverse intelligences.
3. The types of intelligence vary in growth, within a single individual, or across individuals.
4. Types of intelligence can be identified, distinguished, described and defined.
5. Every individual should be given the opportunity to recognize and develop his/ her own intelligence.
6. Using one type of multiple intelligences can contribute to the development of another type of multiple intelligences.

The theory of MI has educational merits because it shows what a complete school program should be in order to develop

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the talents of young people. The traditional schools were originally prepared to support only linguistic and logical / mathematical intelligences and the school system ignores the other types of intelligences (Nawasreh, 2016).

The theory of MI has been widely accepted by educational psychologists in many parts of the world. Until recently, the educational system neglected many learners' abilities and capabilities. It does not appreciate the individual differences in these abilities and does not take into account learners' environment and their needs. The theory of MI came to present a new and vivid perspective for learning and teaching so that learners are the center of the teaching-learning process, in order to work, produce and communicate in a way that fulfills their selves and satisfies their desires (Wahsheh, 2018).

Schools that apply the theory of MI apply a strategy to identify students' competencies and work to strengthen them in addition to helping them overcome their weaknesses. The teacher who has a perception of students' competencies can present the topics in an appropriate way for them. This fluid process of learning encourages students to accept challenges in other areas. A student who has a physical / kinesthetic intelligence or musical intelligence can easily reach a positive psychological state when performing in these areas. Gardner confirmed that experience proves this. The student maintaining the flow of learning by pushing his/ her own capabilities to the extreme always works to obtain more excellence in order to keep a sense of happiness during learning (Goleman, 1995).

The concept of multiple intelligences widely opens the door to innovation and creativity in the fields of education; It presents a larger picture of the student's abilities and potentials for success than that presented by the general IQ scores (Adas, 1997).

Education through the theory of MI provides more opportunities for all students to construct their own meanings in ways that are most appropriate for them. This type of education enables students to express their knowledge in the most efficient manner for them, so, their abilities and self-esteem will be better developed and improved through the learning process (Qousha, 2003).

School applications of the principles of the theory of MI have greatly contributed to the improvement of important educational fields, including: discovering the gifted, individual differences, special education and learning difficulties, and school learning. The theory of MI demonstrated to teachers that students have potentials and they are simply smart, but, in different ways. By applying this theory, teachers can help each student learn because this theory provides scientific methods to realize the special abilities of each student in the classroom. So, education according to this theory is not only for the elite, but, for all (Wahsheh, 2018).

Hussein (2005) pointed out that the success of the educational process highly depends on the teacher. In light of the teacher having a high level of multiple types of intelligences, the teacher's roles in the educational process take a different direction. The teacher prepares the activities and educational materials necessary to develop the required intelligence, therefore, the teaching methods used will be diverse. The theory of MI presents the teacher with a learning model, except for the requirements imposed by the cognitive components of each intelligence. The theory of MI proposes solutions in which teachers can design new activities and experiences that support the teaching-learning process. It provides teachers with a framework within which they can approach and present any educational content in many different ways.

Studies and research have addressed multiple intelligences level among teachers in light of different variables. For example, Al-Dhafiri study (2010) studied the level of multiple intelligences of secondary school principals and teachers in Kuwait and its relationship to organizational climate in their schools from the point of view of principals and teachers. The study sample consisted of (101) principals and (536) male and female teachers. The results showed that the level of emotional intelligence of principals and teachers was high, while the level of musical intelligence was low. The other seven intelligences were at an average level. With regard to the prevailing organizational climate in secondary schools in Kuwait, the results showed that it was at an average level from the point of view of principals and teachers. Finally, there was a positive, statistically significant relationship between the level of multiple intelligences and the organizational climate.

Ozgen, Tataroglu and Alkan (2011) worked to reveal the relationship between multiple intelligences and learning styles of mathematics teachers. The study sample consisted of (243) teachers, and the results of the study showed that the common intelligence of mathematics teachers is logical-mathematical intelligence, and spatial intelligence. The results did not show a statistically significant correlation between the dimensions of multiple intelligences and the learning style.

Mahmoud and Mahrameh (2012) examined the level of multiple intelligences among a sample of special education teachers. The sample of the study included (250) male and female teachers. The results showed that the level of multiple intelligences of special education teachers was moderate. There were no statistically significant differences ($\alpha = 0.05$) in all domains of multiple intelligences due to gender.

Al-Jawaldah, Al-Qamsh and Magableh (2013) investigated the practice level of multiple intelligences among gifted students' teachers in the classroom. The sample of the study was (54) male and female teachers from King Abdullah II

Schools for Excellence in the governorates of Balqa, Zarqa and Irbid. The results of the study indicated that the logical-mathematical intelligence ranked first in terms of practice among the members of the study sample, while social intelligence ranked last. The results showed the superiority of females in the dimension of linguistic intelligence, while the results showed the superiority of males in the dimensions of spatial intelligence and interpersonal intelligence. As for the significance of the differences according to the teachers' specialization (human, scientific), no statistically significant differences were found. According to the significance of the differences according to the educational qualification variable, the differences came in the two dimensions (musical intelligence and interpersonal intelligence) in favor of teachers with educational qualifications (higher studies).

2. Problem and Purpose of the study

The importance of the theory of MI lies in the fact that it is considered one of the theories that have a great role in the educational field. The educational applications of the theory of multiple intelligences have confirmed its effectiveness in improving students' achievement levels and raising their levels of interest towards educational content, in addition to the possibility of using multiple intelligences as an entrance to teaching in multiple ways and methods (Al-Surour, 1997).

The importance of the theory of multiple intelligences is that it also provides teachers with the opportunity for diversity in offering different activities through lessons, and provides students with opportunities to benefit from this diversity, each according to his preferred learning style. When the teacher prepares the unit of study, he can use at least four types of multiple intelligences, and this will provide students with four opportunities to obtain information from the lesson, which will allow the teachers to face a challenge to work in new ways of learning, and may benefit from the feedback they get from students about the learning methods they prefer (Armstrong, 2000).

The theory of MI confirms that students with special needs, especially gifted ones, need to be taught the subject through diversification of methods that develop their different aspects of intelligence, and also stressed the importance of teachers of gifted students possessing the ability to recognize these intelligences and address them during preparation for teaching gifted students.

3. Model of the study

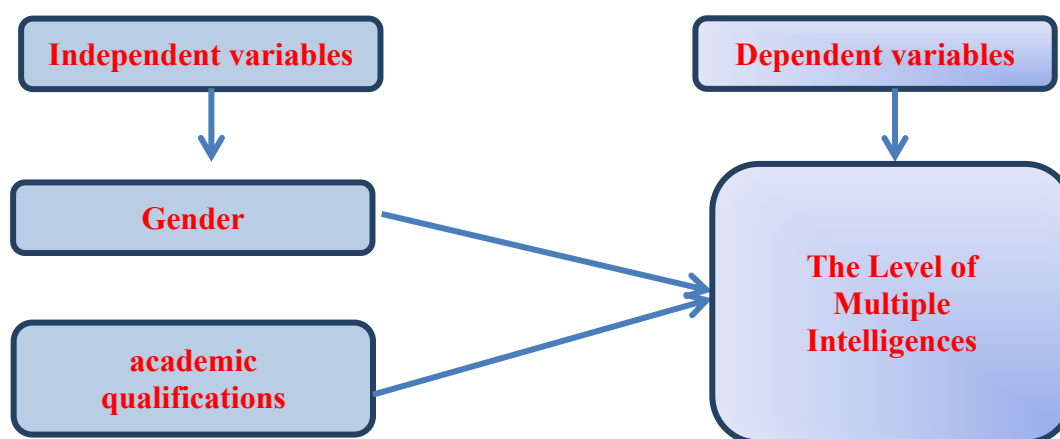


Fig. (1): Model of the study developed by the researchers

Thus, the study sought to answer the following questions:

1. What is the level of multiple intelligences among the teachers of gifted students at Ajloun Governorate?
2. Are there statistically significant differences in the level of multiple intelligences among teachers of gifted students due to gender?
3. Are there statistically significant differences in the level of multiple intelligences among teachers of gifted students that are attributed to academic qualifications?

4. Significance of the Study

The significant of the study is as follows:

- Shedding light on the issue of the level of multiple intelligences among teachers of gifted students at Ajloun Governorate, which in turn affects each of the gifted students themselves, and because it has an important role in the success of effective special educational programs for gifted students, and society in general.
- Draw attention to the differences in the level of multiple intelligences of teachers of gifted students based on a number of variables.
- It may urge officials and those concerned with the affairs of teachers of gifted students to allocate a budget to support training programs to develop their multiple intelligences, and support them financially for what they are doing with this important group of students.
- Identifying the tool for measuring the level of multiple intelligences among teachers of gifted students.
- This study is considered a continuation of what the previous researchers stated on the subject of multiple intelligences, and it may constitute a launch for the study of the subject from multiple aspects and variables, and it will have an impact on the birth of other studies.

5. Method and procedures

The study population and its sample consisted of all teachers of gifted students at King Abdullah II School for Excellence in the Directorate of Education of Ajloun Governorate for the second semester of the school year (2022-2023), totaling (42) male and female teachers, distributed as in Table (1) according to gender and academic qualification.

Table (1): The Percentage of the Distribution of Study Sample According to Gender and Academic Qualification

No.			Number	Percentage
1	Gender	Male	17	40.5%
		Female	25	59.5%
2	Academic Qualification	Bachelor's	20	47.6%
		Postgraduate	22	52.4%
	Total		42	100%

5.1. Instrument of the Study

The researchers used a questionnaire that they developed by reviewing the theoretical framework related to multiple intelligences and making use of the lists and tools in this field, and among those lists are a list Armstrong (2000), and a list Ryan (2013). The questionnaire items were selected accordingly and related to the multiple intelligences that were used in the study, which were (42) paragraphs for the following seven domains of multiple intelligences: six items of linguistic intelligence (1, 2, 3, 4, 5, 6), six paragraphs of logical/mathematical intelligence (7, 8, 9, 10, 11, 12), six paragraphs of spatial intelligence (13, 14, 15, 16, 17, 18), six paragraphs of bodily/kinesthetic intelligence (19, 20, 21, 22, 23, 24), six paragraphs of interpersonal intelligence (25, 26, 27, 28, 29, 30), six paragraphs of intrapersonal intelligence (31, 32, 33, 34, 35, 36), and six paragraphs of musical intelligence (37, 38, 39, 40, 41, 42).

The scoring of each of the individual items was based on a five point Likert scale. The scaling ranged between always (5) and never (1). The higher the respondent scores on the total scale, the higher his/ her social intelligence is. Table (2) presents the scoring criteria employed in the study.

Table (2): Estimated Average of teachers' responses and their levels

Estimated Average	Levels
1 – 1.80	Very low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5	Very high

5.1.1. Validity and Reliability

The face validity of the instrument was checked using a panel of (12) specialists in special education and measurement and evaluation. They were asked to provide their remarks related to the wording of each of the individual items. Some of the items pooled were deleted as recommended by the specialists and the final format of the instrument consisted of (40) items. For construct validity, the instrument was administrated to a pilot sample totaling (30) male and female teachers. The correlation coefficients (Pearson coefficient) was computed between each item and the domain it belongs to. The same statistical procedure was employed to compute correlation coefficient (Pearson coefficient) between the individual domains and the total scale. The correlation coefficients for the items with the individual domains was (0.41-0.88) while it was (0.41-0.94) for the domains with the total scale. Table (3) presents the correlation coefficients for the items with the individual domains and the instrument domains with the total scale.

Table (3): Correlation Coefficients between individual domains and the total scale, items and domains

NO.	Correlation coefficient with domain	Correlation coefficient with the instrument	NO.	Correlation coefficient with domain	Correlation coefficient with the instrument	NO.	Correlation coefficient with domain	Correlation coefficient with the instrument
1	.52*	.48*	15	.70**	.66**	29	.70**	.81**
2	.76**	.52*	16	.62**	.60**	30	.70**	.52*
3	.89**	.82**	17	.48*	.44*	31	.48*	.54*
4	.89**	.84**	18	.81**	.74**	32	.73**	.53*
5	.48*	.41*	19	.83**	.78**	33	.52*	.53*
6	.82**	.82**	20	.65**	.62**	34	.62**	.57**
7	.66**	.65**	21	.66**	.71**	35	.63**	.60**
8	.52*	.49*	22	.87**	.82**	36	.66**	.57**
9	.82**	.84**	23	.65**	.62**	37	.41*	.82**
10	.82**	.85**	24	.90**	.88**	38	.71**	.69**
11	.45*	.42*	25	.48*	.42*	39	.60**	.49*
12	.52*	.49*	26	.60**	.45*	40	.79**	.76**
13	.63**	.45*	27	.52*	.48*	41	.94**	.54*
14	.70**	.49*	28	.66**	.53*	42	.94**	.48*

* Significance (0.05).

** Significance (0.01).

As shown in the above table, all the correlation coefficients were above the cut score and this means that none of the items were deleted. Table (4) shows this.

Table (4): The Correlation Coefficients Between the Dimensions and the Total Score

	linguistic intelligence dimension	Logical /Mathematical intelligence dimension	spatial intelligence dimension	bodily/kinesthetic intelligence dimension	interpersonal intelligence dimension	intrapersonal intelligence dimension	musical intelligence dimension	Total score
linguistic intelligence dimension	1							
logical/mathematical intelligence dimension	.567**	1						
spatial intelligence dimension	.662**	.512*	1					
bodily/kinesthetic intelligence dimension	.871**	.726**	.515*	1				
interpersonal intelligence dimension	.641**	.492*	.440*	.445*	1			
intrapersonal intelligence dimension	.554*	.716**	.487*	.651**	.616**	1		
musical intelligence dimension	.752**	.436*	.451*	.801**	.451*	.492*	1	
Total score	.868**	.721**	.807**	.858**	.78**	.574**	.605**	1

* Significance (0.05).

** Significance (0.01).

Test- retest was employed to obtain the reliability of the study instrument. The instrument was administrated to a pilot sample totaling (30) male and female teachers, with an interval period of (2) weeks. Cronbach-alpha between the two administrations was calculated and found to be (0.88) for the total scale. To further check for the reliability of the instrument, internal consistency coefficient between the individual domains of the instrument was computed and found to be (0.85) for the total scale. Both reliability indicators were sufficient and can achieve the objectives and the study and answer its questions. Table (5) presents Cronbach alpha and internal consistency coefficient for the individual domains and the total score.

Table (5): Cronbach's Internal Consistency Coefficient and Alpha Reliability

Dimension	Test-retest	internal consistency
Linguistic Intelligence	0.86	0.73
Logical/Mathematical Intelligence	0.84	0.71
Spatial Intelligence	0.89	0.71
Bodily /Kinesthetic Intelligence	0.87	0.75
Interpersonal Intelligence	0.83	0.73
Intrapersonal Intelligence	0.86	0.74
Musical Intelligence	0.89	0.78
Total Score	0.88	0.85

5.2. Data Analysis

The current study used the following statistical methods:

- T-test and retest.
- Pearson's correlation coefficient.
- Cronbach's alpha internal consistency.
- Means and standard deviations.

6. Findings and Discussion

Question 1: What is the level of multiple intelligences among the teachers of gifted students at Ajloun Governorate?

To answer this question, the means and standard deviations of the level of multiple intelligences of teachers of gifted students in Ajloun Governorate were extracted as shown in Table (6). The multiple intelligences came at a very high level, and the table shows that the means ranged between (4.25-4.61), where the domain of intrapersonal intelligence came in the first place with the highest means of (4.61), while the musical intelligence came in the last rank with a means of (4.25), and the arithmetic mean of the tool as a whole was (4.45).

Table (6): Means and standard deviations of the level of multiple intelligences of teachers of gifted students at Ajloun Governorate, arranged in descending order according to the averages

No.	Domain	M	SD	Level
1	linguistic intelligence dimension	0.322	4.61	Very high
2	logical/mathematical intelligence dimension	0.228	4.45	Very high
3	spatial intelligence dimension	0.246	4.44	Very high
4	bodily /kinesthetic intelligence dimension	0.303	4.42	Very high
5	interpersonal intelligence dimension	0.368	4.40	Very high
6	intrapersonal intelligence dimension	0.403	4.27	Very high
7	musical intelligence dimension	0.354	4.25	Very high
	Total score	0.215	4.45	Very high

The results of the study showed that the multiple intelligences of the teachers of gifted students at Ajloun governorate as a whole were very high. The researchers explain this result that the mechanisms for selecting teachers of talented students by

the committee assigned by the Ministry of Education has a role in this; Interviews are held with teachers before they join teaching as profession of gifted students, and the most qualified are selected from them. These selected teachers should have very high multiple abilities in diverse teaching methods based on multiple intelligences, and they have personal and social skills in communicating with gifted students.

This result is also explained in light of the characteristics of teachers of gifted students as they deal with the various problems of gifted students. So, they understand their problems, communicate with them, care about their needs, listen to them, share their successes, make them feel important, treat them openly and respectfully without discrimination and trust, and deal with them. Additionally, they show positive attitudes towards them, and are keen to be a role model for them. These teachers were selected based on a set of personal and professional characteristics by a ministerial committee specialized in the affairs of gifted education. They were subsequently subjected to intensive courses and training programs, some of which revolve around the issue of multiple intelligences and its importance. Those in charge of institution are working to provide continuous support to develop the experiences of gifted students' teachers and provide them with the necessary advices on everything they need.

Many educators and researchers agree that teachers are the main key to the success of the educational process in any educational program, whether it is for average, handicapped or gifted children. It is an obvious fact that the teacher who can create opportunities that strengthen or weaken the learner's self-confidence, raise or lower the spirit of creativity, stimulate or frustrate critical thinking. In the field of gifted education, a survey conducted by Renzulli showed that the teacher occupies the first place in terms of its importance in the success of educational programs for these learners among fifteen basic factors mentioned by experts working in the field of gifted education, and curricula and resources came in second place. Finance ranked tenth (Jarwan, 2008).

By examining the teaching strategies and methods used at the King Abdullah II School for Excellence, it is evident that they are based on the theory of MI since education based on this theory provides more opportunities for all students to construct their own meanings in the most appropriate ways for them, and enables them to express their knowledge in the most efficient way for them, thus improving their abilities better, and improving their multiple intelligences through the learning process.

Question 2: Are there statistically significant differences in the level of multiple intelligences among teachers of gifted students due to the gender variable?

To answer this question, means and standard deviations of the level of multiple intelligences of teachers of gifted students were computed based on gender. To clarify the statistical differences between means, "t" test was used, and Table (7) illustrates this.

Table (7): Averages, standard deviations, and the t-test for the effect of gender on the level of multiple intelligences of teachers of gifted students

Domain	Gender	Number	M	SD	T- test	Dif	Statistical significance
Linguistic Intelligence Dimension	Male	17	4.41	0.271	-0.210	40	0.835
	Female	25	4.43	0.328			
Logical/Mathematical Intelligence	Male	17	4.42	0.244	-0.492	40	0.625
	Female	25	4.46	0.251			
Spatial Intelligence	Male	17	4.29	0.398	-1.638	40	0.109
	Female	25	4.48	0.334			
Bodily/Kinesthetic Intelligence	Male	17	4.29	0.356	0.266	40	0.791
	Female	25	4.26	0.439			
Interpersonal Intelligence	Male	17	4.42	0.205	-0.719	40	0.477
	Female	25	4.47	0.244			

Intrapersonal Intelligence	Male	17	4.59	0.359	-0.375	40	0.709
	Female	25	4.63	0.302			
Musical Intelligence	Male	17	4.22	0.342	-0.454	40	0.652
	Female	25	4.27	0.366			
Total Score	Male	17	4.42	0.211	-0.679	40	0.501
	Female	25	4.47	0.219			

Table (7) shows that there are no statistically significant differences ($\alpha=0.05$) due to gender in all domains and in the total score. This result can be explained by the similarity of the personal and professional characteristics of male and female teachers when they were selected by a ministerial committee specialized in gifted education to be teachers of gifted students. Furthermore, the programs, training workshops, courses, consultations, and continuous support provided by the Ministry of Education to develop the capabilities of teachers of talented students are offered to both sexes, and do not differentiate between males and females.

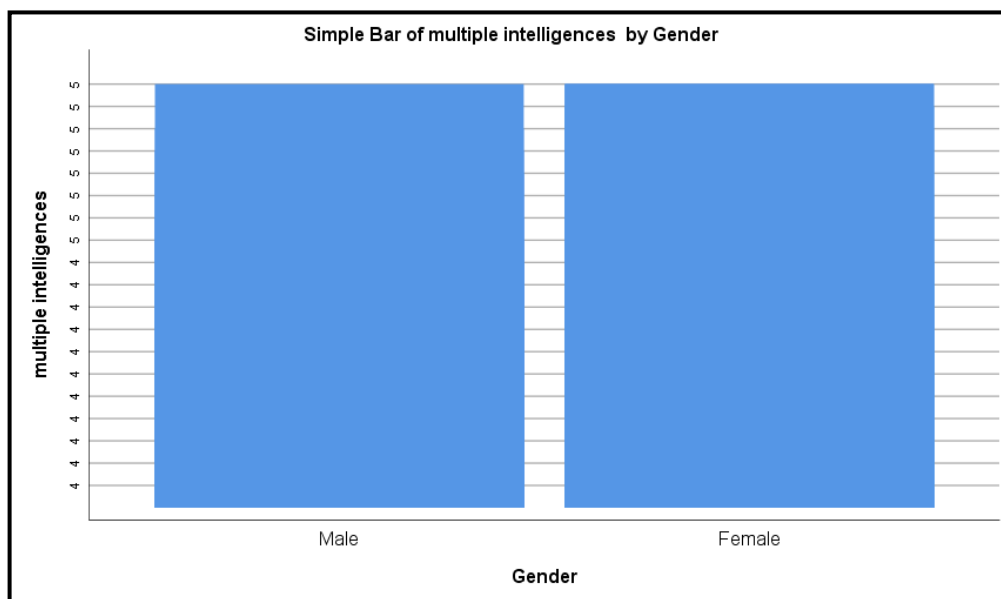


Fig. (2): The effect of gender on the level of multiple intelligences of teachers of gifted students

Figure (2) shows that there are no statistically significant differences ($\alpha=0.05$) due to gender in all domains and in the total score.

Question 3: Are there statistically significant differences in the level of multiple intelligences among teachers of gifted students that are attributed to academic qualifications?

To answer this question, means and standard deviations of the level of multiple intelligences of teachers of gifted students were extracted according to the academic qualification. To identify the statistical differences between the means scores, "t" test was used (Table 8).

Table (8): Averages, standard deviations, and t-test for the effect of Academic qualifications on the level of multiple intelligences of teachers of gifted students

Domain	Academic qualification	Number	M	SD	T- test	dif	Statistical significance
Linguistic Intelligence	Bachelor's	20	4.26	0.246	-3.709	40	0.001
	Postgraduate	22	4.57	0.280			
Logical/Mathematical Intelligence	Bachelor's	20	4.33	0.198	-3.354	40	0.002
	Postgraduate	22	4.55	0.238			

Spatial Intelligence	Bachelor's	20	4.22	0.379	-3.581	40	0.001
	Postgraduate	22	4.58	0.266			
Bodily/Kinesthetic Intelligence	Bachelor's	20	4.12	0.276	-2.569	40	0.014
	Postgraduate	22	4.42	0.451			
Interpersonal Intelligence	Bachelor's	20	4.36	0.197	-2.748	40	0.009
	Postgraduate	22	4.54	0.224			
Intrapersonal Intelligence	Bachelor's	20	4.47	0.330	-2.822	40	0.007
	Postgraduate	22	4.73	0.266			
Musical Intelligence	Bachelor's	20	4.11	0.266	-2.565	40	0.014
	Postgraduate	22	4.37	0.381			
Total Score	Bachelor's	20	4.32	0.136	-4.767	40	0.000
	Postgraduate	22	4.57	0.202			

Table (8) shows that there are statistically significant differences at ($\alpha=0.05$) due to academic qualification in all domains and in the total score, in favor of graduate studies. The researchers explain this result that the academic qualification has a role in the level of multiple intelligences of teachers of gifted students as the teacher acquires skills and abilities when he/she obtains a higher qualification. This indicates that the scientific courses in universities serve their goals and achieve success and distinction for the teacher and increase his/ her abilities, expands his/ her perceptions, and make him/ her more informed and practice what he has gained in his studies, and makes educational institutions seriously looking at how to improve Qualifications of the teacher as he will have a positive impact and achieve the objectives of general education.

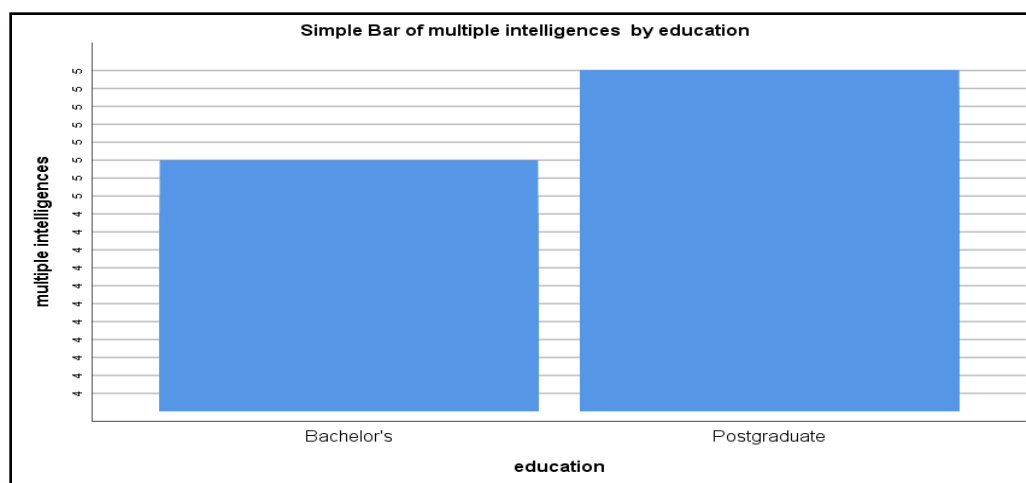


Fig. (3): The effect of Academic qualifications on the level of multiple intelligences of teachers of gifted students

Figure (3) shows that there are no statistically significant differences ($\alpha=0.05$) due to Academic qualifications in all domains and in the total score.

7. Conclusion

The study came to the conclusion that the level of multiple intelligences of teachers of gifted students at Ajloun Governorate was very high. The study showed that there were no statistically significant differences ($\alpha=0.05$) due to the effect of gender in all dimensions and in the total score. And it found that there are statistically significant differences ($\alpha=0.05$) due to academic qualification in all domains and in the total score, in favor of graduate studies. Therefore, the researchers believe that all the efforts of officials and those concerned with the affairs of teachers of gifted students must be combined to increase interest in them, and provide all the material, moral and training means they need to increase the level of their multiple intelligences, so that all of this will be reflected positively on the category of gifted students.

8. Recommendations

In light of the findings of the current study, the researchers recommend the following:

- Establishing more new training projects and workshops to develop the multiple intelligences of teachers of gifted students.
- Teachers practice multiple intelligences in front of the learners, so that they may develop them through modeling.
- Making the curriculum based on multiple intelligences.
- Organizing various student activities to develop their multiple intelligences.
- Guiding, enlightening, and training parents on how to develop the multiple intelligences of their children.
- Supporting the teachers of gifted students financially in proportion to their efforts to achieve a positive orientation, career affiliation, and some freedom from the pressures of the profession.
- Conducting studies that show the role of the family in developing the multiple intelligences of children.
- Conducting studies that show the impact of the use of computers, modern technology and smart cell phones on the development of multiple intelligences, whether positively or negatively.
- Conducting studies that show the effectiveness of using multiple intelligences in the educational process.
- Conducting studies that show the level of multiple intelligences of teachers of gifted students with different variables.
- Intensifying studies on the level of multiple intelligences among teachers of students with disabilities and ordinary students.

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The study Questionnaire

Dear Teachers

The researchers are conducting a study entitled "*The level of multiple intelligences among teachers of gifted students in Ajloun Governorate*". This questionnaire is designed to measure the level of multiple intelligences of teachers of gifted students. Therefore, please read the indicators carefully and answer them honestly, bearing in mind that these answers that you will kindly give will be used for scientific research purposes only.

Thank you for your cooperation

1-Gender:

Male

☐

Female

☐

2- Academic Qualification:

Bachelor's degree

☐

Postgraduate

☐

No.	Item	Always	Often	Sometimes	Rarely	Never
1	I enjoy reading books, magazines and websites.					
2	I am interested in challenging and perplexing crossword puzzles.					
3	I have a good memory of dates and names of people and places.					
4	I make sure to take notes that help me understand and remember the things that matter to me.					
5	People ask me about the meanings of words.					
6	I can speak in front of others and converse with them.					
7	I can mentally perform arithmetic operations quickly and easily.					
8	I think everything has a logical explanation.					
9	I can solve math problems easily.					
10	I prefer logical and orderly sequence in understanding things.					
11	I enjoy playing math games and puzzles that require logical thinking.					
12	I like to put things into similar groups.					
13	I can imagine a lot of thoughts in my mind.					
14	I easily remember things organized in graphics and shapes.					
15	I can interpret data through charts, graphs, and tables					

16	I enjoy solving mazes and visual puzzles.					
17	I can read drawings and maps accurately and easily.					
18	I enjoy rearranging my room.					
19	I enjoy doing things with my hands.					
20	I enjoy playing sports.					
21	I recognize things by touching them.					
22	I have new ideas when I do any physical activity.					
23	I enjoy practical activities.					
24	I use body movements to express my thoughts.					
25	I like working with others in groups.					
26	I love participating in clubs, cultural and social activities.					
27	I always make new friends.					
28	I have the ability to influence others.					
29	Others seek to get close to me.					
30	I like to be a reason to help others.					
31	I set my goal in life and think about it regularly.					
32	I make time to reflect on all aspects of my life					
33	I feel independent in my thinking.					
34	I have the ability to make my own decisions.					
35	When I work alone I do better than working in groups with others.					
36	I have the ability to identify strengths and weaknesses in my character.					
37	Regular poetry attracts me in one rhyme.					
38	I care about musicals and musicals more than other plays.					
39	I can perform the note or rhythm after I hear it.					
40	I hum and sing when I do something.					
41	I have the ability to distinguish and know pieces of music, their rhythm and harmony.					
42	I enjoy many types of music.					

تقرير بحث رقم (10)

Using smartphone applications to administer the educational process	عنوان البحث
Yusra Jadallah Abed Khasawneh, Mohamad Ahmad Saleem Khasawneh, Tareq Alkhasawneh, Suad Abdalkareem Alwaely, Ghaith Ali Mahmoud Al-Barakat.	الباحث / الباحثون
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EDUCATIONAL EXPERIENCE

USING SMARTPHONE APPLICATIONS TO ADMINISTER THE EDUCATIONAL PROCESS

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ABSTRACT

Objective: This study aimed to assess the extent to which teachers in the Zarqa Governorate use smartphone applications to administer the educational process within schools. **Methods:** To accomplish the aims of the investigation, the researcher employed a descriptive research design and utilized a quantitative approach, depending on the questionnaire as the primary instrument for data collection. The research was carried out on a sample of 230 educators, comprising both male and female individuals, from the Zarqa Governorate. The participants were chosen using a random selection technique. **Results:** The findings of this study suggest that the integration of smartphone applications in educational management is influenced by various factors, including managing the teaching process, the evaluation process, student affairs, and employee affairs. The findings suggest that there is no statistically significant variation in the extent of smartphone application usage for educational management in schools within the Zarqa Governorate while taking into account the variables of gender and level of qualification.

KEY WORDS

Employing Smart Phone Applications, Administer the Educational Process, Zarqa Governorate.

INTRODUCTION

Educational institutions are actively pursuing scientific and technological advancements, necessitating the need for robust and progressive administrative systems that can effectively adapt to and leverage these developments while addressing associated issues (Al-Adwan et al., 2018). Contemporary technology, encompassing various devices and software applications such as computers, smart tablets, and mobile phones, has significantly accelerated administrative and educational processes across public and private domains. This technological advancement has yielded numerous benefits, facilitated the attainment of objectives and expedited the completion of diverse tasks with remarkable efficiency and ease (Al-Huneini et al., 2020).

Educational institutions are presently confronted with numerous challenges and transformations that exert pressure on their standards, productivity, and efficacy. The phenomenon of the knowledge explosion is characterized by a significant increase in both the quantity and quality of knowledge across multiple disciplines (Chuchu & Ndoro, 2019). To achieve progress and achieve high standards, it is necessary to actively pursue modernity and excellence. This entails a continual process of expanding and updating concepts and goals, as well as enhancing methods and resources. These institutions are highly motivated to enhance their performance. In order to achieve global advancement across several domains, educational institutions must exert significant efforts to ensure that their faculty and students are equipped with the necessary skills and knowledge to thrive in the digital era, thereby fostering a generation that is adept in contemporary technical competencies (Nikolopoulou, 2020).

The subject of contemporary technologies in education garners significant attention from competent authorities in general, as well as schools in particular. Among these technologies, computers receive the most focus due to their numerous advantages and the educational and material capabilities they offer, which have coincided with their widespread adoption (Pramana, 2018). The computer is employed to support the various components of the educational process by facilitating numerous administrative, routine, and written duties, as well as various organizational responsibilities, hence saving time and effort (Singh & Miah, 2020).

The utilization of computers and digital technology in many formats offers numerous benefits in the management, organization, and implementation of the educational process. There are multiple areas

in which they engage in deception, with one of the most significant being the augmentation of avenues for community involvement within and beyond the educational institution, catering to the needs of parents, students, instructors, and principals alike (Malloy, 2020). Individuals with a vested interest in educational matters, encompassing computers, mobile phones, and information networks, as well as the efficiency and precision of information storage and the establishment of an information repository, are all included in this discussion. The timely processing, utilization, and retrieval of data serve as a significant catalyst for expediting outcomes, facilitating decision-making, and ensuring continuity in the instructional practices employed by educators and learners alike (Mfaume, 2019).

Educational technologies utilizing smartphones, commonly referred to as mobile learning, offer an alternative approach to education, granting learners autonomy in selecting their desired subjects, determining their preferred learning sources, and accessing educational materials at their convenience (Miller, 2018). Mobile learning, also referred to as m-learning, encompasses the provision of educational opportunities through the utilization of compact wireless devices, including but not limited to mobile phones, digital assistants, and smart phones, hence enabling learning to occur at any given time and location (Wang et al., 2023). This form of education offers opportunities for mobility across multiple domains, including physical spaces beyond the confines of traditional classrooms, technical spaces facilitated by devices and equipment, conceptual or cognitive spaces accessed through Internet networks, and social spaces through communication with peers and diverse communication networks (Ahmed et al., 2020).

The prevalence of cell phones in individuals' lives and their significant role in capturing their attention has prompted the education sector to explore ways to effectively utilize these devices and leverage their potential advantages for the benefit of educational administration, teachers, and learners (Amez & Baert, 2020). Research has demonstrated the imperative of adequately training educators and equipping them with the necessary competencies to effectively handle contemporary data. Furthermore, scholars have emphasized the significance of incorporating technological advancements and allocating resources towards educational endeavors. Additionally, it has been underscored that educators should possess a comprehensive understanding of e-learning technology and its diverse applications (Chang et al., 2019).

The integration of mobile phones into the educational process and the utilization of their services in this

domain contribute to its advancement, thereby emphasizing the significance of adopting smartphone applications as a contemporary technological tool. Furthermore, it urges decision-makers in higher education institutions to conduct a strategic evaluation (Hadad et al., 2020). In order to effectively implement mobile device technologies and their applications in educational settings, it is imperative to develop carefully considered strategies that promote awareness and understanding among students. This is particularly important as students exhibit a greater inclination towards utilizing their personal smartphones as opposed to carrying traditional course books. The preference for smartphone applications in the learning process is driven by the enhanced clarity and user-friendly nature that these applications offer (Heo & Lee, 2018).

The increasing demand for distance education in several nations presents educational institutions with significant obstacles in selecting suitable procedures and technology to effectively manage the contemporary educational process and accomplish their objectives optimally and effectively (Lin et al., 2021). These institutions aim to employ technology that exhibits qualities of adaptability and interactivity, hence yielding advantages and facilitating their ability to stay abreast of advancements. The administration should consider the implications of the information age and globalization, and adapt accordingly to harness their beneficial aspects. Additionally, it is imperative to continuously enhance the competencies of administrators and educators to align with technological advancements (Park, 2020).

Upon conducting a thorough examination of the available literature, it was observed that there is a dearth of study that specifically investigates the utilization of smartphone applications for educational management. Hence, it is imperative to undertake research in order to determine the extent to which smartphone applications are utilized for instructional management in schools within the Zarqa Governorate, as perceived by instructors.

Research Questions

The focus of this research is to answer the questions posed below.

1. What is the degree of use of smart phone applications in managing the educational process in schools in the Zarqa Governorate from the point of view of teachers?
2. Are there statistically significant differences in the degree of employing smartphone applications in managing the educational process due to the variable of gender and level of qualification?

LITERATURE REVIEW

The contemporary period is distinguished by the extensive utilization of sophisticated methods and technologies, including computers, the Internet, networks, and mobile phones, as various institutions endeavor to transition from their conventional structure to a digital one (Peng et al., 2022). The individuals in question employ various technologies to execute and oversee their work, enabling them to efficiently and effortlessly complete several duties. Furthermore, they engage in continuous communication with both clients and colleagues, unhindered by temporal or spatial limitations (Troll et al., 2021). The adoption of information technologies for administrative tasks in institutions did not emerge spontaneously, but rather as a consequence of their numerous advantages and features. These include streamlining job procedures, facilitating service provision, reducing time requirements, ensuring accuracy and objectivity, and enabling seamless communication and collaboration among individuals and groups (Ifeanyi & Chukwuere, 2018).

Educational institutions are diligently striving to align themselves with the advancements in digital and technology domains (Alfailakawi & Al-Anzi, 2022). An effective school administration is characterized by its utilization of contemporary technologies in the execution of administrative tasks across various domains, including student enrollment, communication with parents, streamlining administrative processes, and alleviating repetitive and clerical duties. Technologies and communication methods also facilitate the school's engagement with the local community, so contributing to its instructional objectives (Al-Hamad et al., 2020).

The rapid advancements in communication and information technologies, coupled with the widespread adoption of various technological tools among students in universities and schools, have given rise to novel educational methods (Mohammadi et al., 2020). The evolution of educational tools initially involved computer-based methods, but has since expanded to incorporate wireless and mobile communication technology. This progression has facilitated the emergence of novel learning paradigms, including mobile learning (Alzatma & Khader, 2020).

Smartphones are often regarded as the foremost prevalent and favored mobile communication technology, extensively employed in contemporary educational and entertainment settings, and embraced by individuals across many societal strata, irrespective of their cultural, economic, or social backgrounds (Tbakhi, 2020). The company possesses the ability to deliver high-

quality services by means of their wide range of apps that are specifically intended to cater to the needs of their consumers, irrespective of their objectives. Smartphones and their applications have significantly enhanced the efficiency and convenience of daily work tasks. Their effectiveness is further amplified by their ability to adapt to the fast-paced nature of technological advancements (Al-Adwan et al., 2018). The extensive reliance on digital technology has prompted the integration of these applications into educational management, thereby enriching the educational process and introducing novel approaches to work. To streamline this process, it is imperative to have a comprehensive understanding of these applications. This paper explores the different types and categories of smart applications, with a particular focus on their advantages in educational process management (Al-Huneini et al., 2020).

Chuchu et al. (2019) provided a definition for smartphone applications, stating that they are software programs specifically created to function on mobile devices, such as smartphones or tablets. These applications are placed on the mobile device's operating system and are able to operate immediately upon installation. The system exhibits certain characteristics and possesses capabilities that are similar to those of the device. According to Nikolopoulou (2020), they presented a concise explanation of smartphone applications as a component of a software program that offers similar functionalities to the mobile device as the original program does to the computer.

Smartphone applications can be classified into three primary categories, encompassing several applications within each category. These categories are referred to as "native applications," which are developed specifically for a particular operating system. Various applications depend on specific operating systems for their functionality. For instance, certain applications are designed exclusively for the "Android" or "iOS" operating systems (Pramana, 2018). Additionally, there are "Web applications" that can be accessed either through a web browser or a dedicated application. Lastly, hybrid applications are capable of functioning across multiple operating systems without necessitating reprogramming efforts to accommodate each system. In addition to the aforementioned categories, cloud applications refer to software programs that facilitate access to a collection of publicly available services on the Internet, providing users with a secure and user-friendly experience (Singh et al., 2020).

There exists a collection of applications that have been purposefully developed to offer educational

services and support to both students and teachers. These applications include Evernote, which facilitates the composition of notes and the storage of documents; Student Buddy, which aids in the organization of study assignments, submission deadlines, and lectures; Plickers, which serves as a tool for assessing students' knowledge; and Prezi, which assists in the delivery of lesson slides in a unique manner (Malloy, 2020). Additionally, there are applications tailored for certain schools and educational institutions, designed to provide mobile learning opportunities and foster effective communication between educators and students. Also, there exists a category of smartphone applications that have been developed and designed specifically for the purpose of school management and administration. Examples of such applications include MySchool and SmartSchool, which offer a range of services including student statistics, absence tracking, and the ability to send and receive electronic records and student notes (Mfaume, 2019). The purpose of this review is to assess the study and examination schedules, as well as to provide information regarding the instructors and their instructional materials. Additionally, it offers the opportunity to communicate with the instructors, inquire about payment details, and determine the outstanding payments (Miller, 2018).

Smartphones offer a range of services that have facilitated the development of mobile applications and enhanced their functionality and capacities. They significantly contributed to the integration of cellphones into the educational-learning paradigm. Numerous educational institutions globally have exhibited a propensity for employing these technologies inside the realm of education. One of the services available is the Short Messaging Services (SMS), which facilitates the transmission of text messages between users (Wang et al., 2023). Another service is the Wireless Application Protocol (WAP), which encompasses a set of global regulations enabling wireless Internet access for users. In addition to their other functionalities, smartphones also offer the capability of packet messaging service. The General Packet Radio Service (GPRS) is a wireless communication technology that enables efficient Internet browsing and data transmission. One can also derive advantages from the utilization of the Bluetooth technology, which facilitates wireless communication and enables the interconnection of devices within designated proximity ranges (Ahmed et al., 2020). The multimedia service, known as MMS, enables users to engage in the exchange of multimedia messages, encompassing various forms of material such as films, drawings, color photos, and audio. On

the basis of what has been discussed thus far, the applications that can be used on smartphones can be summed up as follows: managing the process of teaching, managing the process of evaluating, managing student affairs, and managing personnel affairs (Amez et al., 2020).

The concept of Mobile Learning has gained significant importance in light of the proliferation of smartphones and their associated applications. The subject matter pertains to the acquisition of knowledge and skills, as well as the potential for accessing them via mobile devices regardless of location or time (Chang et al., 2019). It presents an alternative opportunity compared to the conventional model of teacher-led classes. The educational content is disseminated to students through a range of mediums, including written text, visual images, auditory elements, and audiovisual presentations. Moreover, this delivery method enables learners to access the material at their convenience. In order to maintain a continuous contact, the instructor is required to adapt activities and strategies, as well as actively seek out novel approaches and processes (Hadad et al., 2020).

The contemporary iteration of mobile devices presents a diverse array of wireless functionalities, including but not limited to interactive video and audio communication, facilitation of video conferences and seminars, high-speed internet browsing, and the exchange of text messages and emails (Heo et al., 2018). These devices are equipped with applications and programs that offer requisite support, enabling them to assume a significant role in the realm of mobile learning and effectively contribute to educational management. The utilization of mobile devices in educational settings centers around the notion of digital culture, facilitates the assimilation of knowledge, and empowers the student to assume a central role in the educational process (Lin et al., 2021). Furthermore, it amplifies his engagement by means of his regular utilization of self-directed learning, and augments his inclination to engage in communication and seek clarification, since it affords him the autonomy to select an opportune moment. This feature affords him the convenience of regularly updating and refreshing the instructional resources offered. One notable characteristic of this particular mode of education is the extensive range of the learner's peers originating from various global locations (Park, 2020).

Smartphones and their applications possess diverse potential for integration within the educational sphere, serving as valuable tools for both educational managements through multimedia

messaging and instructional delivery (Peng et al., 2022). The provision of contemporary technologies, such as voice recognition technology, enables learners to utilize their voices as a means of inputting information, with the added benefit of having their spoken words automatically transcribed into written texts. The utilization of recording lectures and translating them into texts provides significant advantages in the study of foreign languages. Additionally, it can be beneficial in the context of oral examinations and expedited research endeavors (Troll et al., 2021).

There are numerous and diverse benefits associated with mobile learning and the functionalities provided by smartphone applications. The integration of these technologies into education is often seen as a significant advancement. However, it is important to acknowledge the existence of a range of problems and issues that must be carefully evaluated (Ifeanyi et al., 2018). Despite the significant advancements made by the smart phone business and the development of its diverse applications and advanced functionalities, there are certain limitations that may impede its integration into the educational sphere. The primary obstacle lies in providing adequate training for educators and students, particularly when utilizing specialized applications. Additionally, there is a need to modify curricula and lesson plans to align with the mode of delivery through smartphones, which necessitate frequent battery charging (Alfailakawi et al., 2022). Furthermore, the limited screen size poses a constraint on the display of extensive data. Arguably, one of the most significant challenges is to the susceptibility of these mobile devices to loss or theft, as well as the rapid obsolescence resulting from the dynamic nature of the market for their resale. In addition to these hurdles, there is the issue of printing content when devices are not connected to a network, as well as the occurrence of program crashes due to the compression and transmission of large volumes of data. However, it is possible to identify suitable solutions for these and other obstacles (Al-Hamad et al., 2020).

The educational process is a highly intricate process that necessitates a well-defined framework, solid foundations, and established regulations. It aims to accomplish a range of educational objectives that pertain to both the teacher and the learner. The administration serves as the primary driving force behind this process, overseeing its operations and executing its plans to their fullest extent (Mohammadi et al., 2020). According to Alzatma et al. (2020), the concept of educational process management refers to the overall management of the educational system. It encompasses the

management of organizations responsible for implementing educational processes, including the utilization of human and material resources. The author further elucidates that the terms “educational administration” and “administration of education” are two distinct notions that pertain to the discipline of managing educational institutions. According to Tbakhi (2020), the term refers to a set of executive and technical procedures that are executed through collaborative and cooperative humanitarian efforts. The primary objective of this endeavor is to establish an active and organized intellectual and collective environment, with the aim of surmounting challenges, addressing prevailing issues, and attaining the specific educational objectives of both society and educational institutions. The discipline of public administration draws its nomenclature and operational framework from the field of public administration, while its essence and attributes are shaped by the field of education (Al-Adwan et al., 2018).

The distinguishing factor of educational process management lies in the explicit definition of its objectives, which are pursued through systematic planning and execution of various tasks. The objectives encompass the provision of comprehensive student care and the cultivation of their character through a range of programs and events both within and beyond the school premises (Al-Huneini et al., 2020). This entails the continuous enhancement and adaptation of the curriculum to align with emerging trends, while ensuring its suitability for the students, the school, and the wider community. Additionally, the school is committed to supporting and nurturing teachers by granting them professional autonomy. The individuals in question offer aid and backing in the execution of their designated responsibilities, enhancing the relationship between the educational institution and the broader community by establishing robust connections. Furthermore, they provide a range of resources, encompassing human, material, and even environmental assets (Chuchu et al., 2019).

Administrative work encompasses a set of tasks and procedures sometimes referred to as functions, namely planning, organizing, staffing, directing, communicating, and controlling. The execution of these tasks is carried out by the head of the institution and their assistants, in accordance with the powers and specializations bestowed upon them, with the aim of guiding persons towards the attainment of objectives and overseeing the educational process (Nikolopoulou, 2020). The functions of management in this context bear resemblance to those found in other institutions and organizations. However, there exist notable

distinctions in terms of the specific content and personnel involved (Pramana, 2018).

Educational institutions that aspire to enact tangible and impactful transformations, while being abreast of contemporary advancements, diligently fulfill their roles by leveraging technology. This technological integration endows them with diverse advantages and renders them suitable with the demands of modernity and advancement (Singh et al., 2020). The utilization of smartphone applications in the management of the educational process is a highly efficient method that may fulfill many administrative functions in innovative and advanced manners, thereby embodying the characteristics of contemporary electronic administration, which offers a range of benefits. Furthermore, the integration of technology and information systems in schools not only facilitates the school’s involvement in the ongoing technological and information revolution, but also leads to a reduction in the resources expended on various administrative and technical tasks (Malloy, 2020). Additionally, it expands opportunities for community engagement in the educational process by ensuring that all individuals possess smartphones that enable their active participation. Moreover, the implementation of technology enhances the efficiency and accuracy of administrative data collection, storage, retrieval, and disposal. The implementation of this system effectively streamlines ordinary administrative tasks within educational institutions, hence optimizing the provision of high-quality and efficient educational services to students throughout the academic year (Mfaume, 2019). Furthermore, it significantly mitigates the need for excessive paperwork and alleviates the workload of staff members. In order to facilitate the effective integration of smartphone applications in educational management, it is imperative to consider the incorporation of e-learning components, which pertain to the educational aspects of digital technology. These components play a crucial role in establishing the fundamental principles that underpin the utilization of smartphone application technology (Miller, 2018).

Previous Studies

Anna (2019) conducted an examination of the ten most often used mobile phone applications that are utilized to facilitate the learning process for students pursuing a library diploma. The objective of this study was to investigate the utilization of mobile phone applications by library diploma students at the Indonesian University of Airlangga in order to enhance their learning experience. The research was carried out on a sample of 132 students, selected from a population of 200 students enrolled

in a library diploma program. The utilization of questionnaires and interviews served as instruments for data collection. The study employed a descriptive and analytical methodology, yielding findings that indicate the prevalence of applications facilitating information sharing among students, fostering collaborative communication, and supporting educational endeavors during lectures. Notably, mobile phone applications were found to exert a substantial influence on education and students.

In a study conducted by Mfaume (2019), the author examined the level of teachers' awareness regarding the educational advantages of the gadget, their utilization of it, and the obstacles they encountered in incorporating it into their educational practices. The research conducted was of a qualitative nature, employing a sample size of twenty-one (21) instructors who were intentionally chosen from three secondary schools. The researchers conducted semi-structured interviews to collect data, which were subsequently subjected to thematic analysis. The results of the study indicate that educators possess a strong understanding of the advantages associated with the use of technology in the classroom, although they demonstrate limited utilization of these tools for instructional objectives. Key impediments that have been identified include a deficiency in knowledge and abilities, a negative attitude, limited awareness of the ICT policy, advanced age, and low desire.

The study conducted by Al-Hamad et al. (2020) examined the utilization of smart devices in the context of teaching and learning within Jordanian universities, focusing specifically on the viewpoints of instructors. A sample of (364) instructors was selected in a random manner. Data was collected using a structured interview method, and the obtained results were analyzed qualitatively. The results obtained from the study indicate that a majority of respondents, specifically 68.1%, expressed opposition against the utilization of technology inside the classroom setting. Conversely, a minority of respondents, comprising 31.9%, expressed a favorable stance towards technology use. Despite a significant proportion expressing opposition to the utilization of technology, the majority of individuals nevertheless engage with technology in some capacity. The most often cited disadvantages included distraction, misuse, and insufficient proficiency. Conversely, instructors were motivated to incorporate technology into the teaching process primarily due to the potential for enhanced interaction and heightened engagement.

The study conducted by Mohammadi et al. (2020) aimed to assess the level of acceptance of Mobile

Learning among faculty members. The chosen research approach employed a concurrent mixed methods design. The research methodology employed in the quantitative component of the study was a descriptive survey, while a phenomenological approach was utilized for the qualitative component. The quantitative component of the study included a study population of both male and female faculty members from technical engineering groups at Shiraz University. The total number of participants in this population was 147. From this population, a subset of 87 individuals was selected using a stratified random selection technique. The qualitative portion of the study involved a subset of the faculty members who had previously participated in the quantitative portion. The participants were recruited using a purposive sampling strategy with criteria procedure. The research instruments utilized in this study comprised a scale for measuring acceptance of mobile learning, which was developed by the researcher. After conducting an assessment of the scale's validity and reliability, it was subsequently administered to the participants. The collection of qualitative data was conducted through semi-structured interviews with faculty members who have prior experience in the field of mobile learning. The findings from the quantitative analysis revealed that, with the exception of the dimension of Usefulness, the faculty members exhibited a higher degree of acceptance towards mobile learning across all sectors. Specifically, the dimension of Usefulness was found to be at a moderate level. In the qualitative analysis phase, the data was integrated and summarized, resulting in the identification of 17 fundamental themes and three overarching themes. These themes encompassed the advantages of mobile learning, the obstacles and constraints associated with mobile learning, and the necessary infrastructure for the successful implementation of mobile learning.

In a study conducted by Nikolopoulou (2020), the author explored the attitudes of Greek secondary school teachers regarding the utilization of mobile phones and tablets in the classroom. The study involved the distribution of a questionnaire with open-ended questions to a sample of 64 teachers from various subject areas. Utilizing a descriptive-analytical approach, the study's findings indicate that the primary advantages associated with the utilization of smart devices pertain to student motivation and activity sharing, the facilitation of engaging interactive lessons, convenient access to information, and the enhancement of students' technological proficiency. Conversely, the identified barriers encompass the insufficiency of equipment and legal restrictions impeding the use of mobile phones. Within the educational institution, the

conduct of pupils and their involvement with electronic gadgets are observed.

In a study conducted by Tbakhi (2020), the author examined the extent to which smartphone applications are utilized in the management of the educational process within schools in Jordan. The researchers employed the descriptive survey methodology. The study's sample comprised a total of 366 teachers, both male and female, who were selected by a random sampling method. These teachers were picked from schools located in the Qweismeh district and the Amman Qasbah in the governorate of Amman, Jordan's capital city. The domains encompassed in this discussion include the pedagogical sector, the realm of smartphone applications designed for evaluation management, the sphere of smartphone applications dedicated to student affairs management, and the domain of smartphone applications focused on personnel affairs management. The study's findings indicated a moderate level of utilization of smartphone applications in the management of the educational process. The findings also indicated that there were no statistically significant disparities in the mean replies of the participants in the study sample based on the gender variable. The findings also indicated that there were statistically significant variations attributed to the academic specialty variable, with a preference observed for the humanitarian specialization. The variable of supervisory authority exhibits statistically significant variations, favoring the private sector.

In their recent study, Alfaiakawi et al. (2022) shed light on the actual use of smart device applications among university students in Kuwait for educational purposes. The primary objective of the research was to examine the influence of two key variables, namely gender and usage rate, on the aforementioned phenomenon. The survey descriptive approach was employed by the researcher in order to accomplish the objectives of the study. The study sample comprised 385 university students who were recruited by a random sampling method. The researcher devised a data collection instrument, comprising 35 paragraphs distributed across three axes, which was subsequently implemented during the second semester of the academic year 2020/2021. The findings of the study indicated that the various dimensions of the study tool exhibited an average level of agreement. Specifically, the use of smart device applications in learning was found to have an average level of focus, as evidenced by a mean score of 2.093. Additionally, the study revealed that the perceived importance of utilizing smart device applications in learning also received an average level of emphasis,

with a mean score of 2.215. The findings indicated that there were no statistically significant disparities observed in the research variables, namely gender and utilization rate.

METHODOLOGY

The present investigation utilized a descriptive research methodology and quantitative techniques to offer a comprehensive, accurate, and structured depiction of the attributes and information pertaining to the target population under scrutiny. Saunders et al. (2009) assert that the primary objective of descriptive quantitative research is to methodically delineate and elucidate the diverse attributes of the subject or context under investigation. Subsequently, the gathered data is submitted for comprehensive analysis and subsequently displayed.

Population and Sample

A study was done during the second semester of the academic year 2023, involving a sample of 374 teachers from schools located in the Zarqa Governorate. According to the statistical findings reported by Krejcie and Morgan (1970), a sample size of 191 is deemed adequate for accurately representing a population. The main aim of the study was to conduct a comprehensive survey among teachers in order to guarantee that the sample accurately reflected the broader community. In addition, the primary objective of the study was to gather a substantial amount of data from the participants, while simultaneously minimizing any potential biases that could influence the outcomes (Blumberg et al., 2014). Consequently, a digital distribution strategy was implemented to effectively disseminate the survey, guaranteeing its widespread accessibility among all teachers. A total of 245 questionnaires were identified. According to the findings of Hair et al. (2010), a specific subset of 15 surveys, out of the initial sample size of 245, were excluded from the study due to their high proportion of unanswered questions, exceeding 50%. The study resulted in a collection of 230 questionnaires that were deemed to possess both credibility and validity.

Research Instrument

In order to accomplish the research objectives, the researcher included a previous study conducted by Tbakhi (2020) to assist in the creation of the questionnaire as the primary research instrument. The survey was divided into two separate portions. The introductory section of the survey collects data regarding the participants' "gender" and "level of qualification." Section 2 comprised a comprehensive compilation of 40 items that were purposefully crafted to assess four various facets of smartphone

applications utilized for educational management. The aforementioned categories encompass the breadth of smartphone applications used for managing the teaching process, as exemplified by items 1-10. They also include smartphone applications utilized for managing the evaluation process, as indicated by items 11-20. Additionally, these categories encompass smartphone applications designed for student affairs management, as demonstrated by items 21-28. Lastly, they encompass smartphone applications intended for employee management, as illustrated by items 29-40.

Instrument Validity

A cohort including ten educational technology specialists, who are associated with universities in Jordan and possess specialized knowledge in the areas of language development, scientific accuracy,

and clarity, were tasked with the responsibility of evaluating the reliability and validity of the study instrument. According to evaluations conducted by experts, it has been determined that all components have been deemed satisfactory, but with slight linguistic modifications.

Instrument Reliability

One approach utilized to evaluate the dependability of measurement is evaluating the consistency of results through the use of similar samples and instruments, while keeping all other variables constant. The evaluation of response consistency was carried out using Cronbach's alpha coefficient. According to Saunders et al. (2009), the evaluation of a survey's reliability is contingent upon its credibility, which is considered to be achieved when it reaches or surpasses a minimum threshold of 60%.

Table 1: Cronbach Alpha Test.

Variables	Value
Smartphone applications used for managing the teaching process	0.825
Smartphone applications utilized for managing the evaluation process	0.813
Smartphone applications designed for student affairs management	0.854
Smartphone applications intended for employee management	0.834
Total	0.844

The data shown in Table 1 demonstrate a high degree of coherence in the study, as evidenced by their alignment falling within the range of 0.813 to 0.854. Furthermore, it is imperative to acknowledge that each section of the survey yielded a Cronbach's alpha coefficient exceeding 0.60, indicating a significant degree of dependability. Consequently, no inconsistencies were detected across the different components of the research equipment.

Data Analysis

In order to comprehensively examine the research questions, the statistical analyses were conducted utilizing the SPSS program. The study employed the independent sample t-test and computed means as part of its methodology. According to Cuevas et al. (2004), the independent sample t-test is proposed as an appropriate statistical technique for the purpose of comparing the means of two distinct groups. This part offers a comprehensive elucidation of the results derived from employing various research methodologies to assess and discuss these findings. Objects are classified as possessing a low grade when their mean score is equal to or less than 2.33. The item's grade is classified as moderate, with the mean score lying within the range of 2.34 to 3.67. The item demonstrates a high level, as shown by a mean score that is equal to or greater than 3.68.

FINDINGS AND DISCUSSION

Descriptive analysis was utilized to offer a full portrayal of the characteristics of the participants, with particular attention given to their "gender" and "level of qualification." The analysis of the survey data indicated that a substantial segment of the respondents, precisely 67.4%, self-identified as male. In contrast, the data reveals that 32.6% of the respondents self-identified as female, indicating that the male respondents constituted the majority of the sample. In relation to the categorization of participants' level of qualification, it is important to highlight that 73.9% of the respondents obtained an undergraduate degree, while 26.1% obtained a postgraduate degree, as evidenced by the statistical data presented in Table 2.

Table 2: The Respondents Profile.

The Variable	Categories	N	%
Gender	Male	155	67.4
	Female	75	32.6
level of qualification	Undergraduate degree	170	73.9
	Postgraduate degree	60	26.1

To effectively investigate the first research inquiry, it is necessary to calculate the mean and standard deviations of all variables related to the degree of use of smartphone applications in managing the educational process in schools in the Zarqa Governorate from the point of view of teachers.

Table 3. Means and Standard Deviation.

N	Items	Means	St.devs	Results
Smartphone Applications Used for Managing the Teaching Process				
1	Access to scientific sources such as search engines and digital libraries.	4.73	0.41	A
2	Enriching the teaching material with multimedia such as sounds, videos, presentations, etc.	4.38	0.55	A
3	Designing evaluation games and competitions to achieve educational objectives.	4.18	0.62	A
4	Follow up and implement school assignments.	4.36	0.57	A
5	Support teaching strategies.	4.53	0.53	A
6	Building e-learning lessons and modules.	4.48	0.51	A
7	Investing teaching and learning time effectively.	4.63	0.43	A
8	Follow up on the implementation of study plans.	4.68	0.46	A
9	Diagnosing students' weaknesses.	4.55	0.51	A
10	Communicating the school's vision and educational goals	4.58	0.49	A
	Total	4.61	0.32	A
Smartphone Applications Utilized for Managing the Evaluation Process				
11	Conducting school tests electronically.	4.33	0.45	A
12	Correcting school tests electronically.	4.48	0.40	A
13	Preparing a question bank for electronic tests.	4.59	0.37	A
14	Archiving students' grades and averages.	4.39	0.52	A
15	Providing the necessary reinforcement to students.	4.43	0.41	A
16	Evaluating students' performance to improve their achievement levels.	4.69	0.37	A
17	Evaluating the extent to which educational goals have been achieved.	4.28	0.53	A
18	Evaluating the impact of new educational programs on students' cognitive and skill levels.	4.13	0.57	A
19	Evaluating teachers' performance and work.	4.25	0.51	A
20	Follow up on the use of technology and modern methods by teachers.	4.70	0.32	A
	Total	4.41	0.35	A
Smartphone Applications Designed for Student Affairs Management				
21	Monitoring (attendance and absence) of students.	4.68	0.53	A
22	Follow up on students' data (health and social).	4.71	0.49	A
23	Sending and receiving students' attestations and official documents to and from the concerned authorities.	4.45	0.56	A
24	Providing students with class schedules and test schedules.	4.41	0.57	A
25	Continuous communication with parents regarding students' comments.	4.61	0.55	A
26	Sending midterm and final certificates and follow-up reports to parents.	4.35	0.60	A
27	Involving students in school activities and competitions.	4.55	0.54	A
28	Supporting students' various skills and talents	4.51	0.53	A
	Total	4.42	0.34	A
Smartphone Applications Intended for Employee Management				
29	Providing employees with the school calendar, quarterly and annual plans and schedules.	4.71	0.51	A
30	Exchanging electronic messages, circulars, and administrative files.	4.73	0.46	A
31	Preparing work reports.	4.48	0.53	A
32	Holding (meetings and individual meetings) with employees.	4.44	0.55	A
33	Providing the necessary technical support for workers to perform their work.	4.64	0.53	A
34	Training employees on the necessary programs and applications.	4.38	0.57	A
35	Developing development plans for employees' performance.	4.58	0.51	A
36	Providing workers with feedback on their performance of various tasks.	4.54	0.52	A
37	Facilitating staff communication with students' parents.	4.75	0.45	A
38	Raising the efficiency of workers in using technology.	4.74	0.46	A
39	Providing educational resources and new programs for employees.	4.50	0.55	A
40	Exchange of experiences between employees.	4.45	0.54	A
	Total	4.54	0.31	A
	All instrument	4.50	0.32	A

Based on the information shown in Table 3, the mean score for the extent to which teachers in the Zarqa Governorate's schools use smartphone applications to oversee instruction was found to be 4.50, with a standard deviation of 0.32. This outcome could be explained by teachers' increased understanding of how to take advantage of smartphones and their applications to manage the learning process in all its facets, as well as how to help them use them more effectively and the skills required to use these time- and effort-saving tools. and enhancing the quality of educational services while undertaking this extensive growth. It is noteworthy that the global conditions brought about by the Corona pandemic have rendered smartphone applications an answer to numerous technological predicaments schools face when it

comes to student education. This could account for the widespread use of smartphone applications in the areas of teaching and evaluation management. The high usage of smartphone applications in the areas of managing staff and student issues may be attributed to the clear strategy for utilizing them and taking advantage of their sophisticated capabilities in all aspects of school administration. This result aligns with the studies conducted by Anna (2019), Al-Hamad et al. (2020); Mfaume (2019); Mohammadi et al. (2020); Nikolopoulou (2020); Tbakhi (2020) and Alfaiakawi et al. (2022).

While the role of the Smartphone applications used for managing the teaching process was determined to be 4.61, accompanied by a standard deviation of 0.32. The item labeled "Access to scientific sources

such as search engines and digital libraries” (item 1) exhibits the highest mean value among all the elements pertaining to managing the teaching process, with a score of 4.73. The item 3 mean score, which corresponds to “Designing evaluation games and competitions to achieve educational objectives”, exhibits the lowest value among all items, measuring at 4.18. This is explained by the significance of assigning and completing homework, as well as teachers’ interest in it as it is a cornerstone of education. The availability of special applications that offer research services, digital libraries, and applications that enhance the teaching process with images, videos, and presentations may make teachers’ interest in using smartphones in the classroom strong. These mechanisms, which make it easier for students to complete assignments and submit them, as well as for teachers to receive and follow up on them, may also serve as a good incentive for students to use smartphones frequently. In addition to the fact that all teachers are familiar with this kind of application, the fact that it is not widely used—particularly when evaluating students’ weak points through assessments of some of their foundational knowledge—and the fact that there is a continuing preference for traditional methods when completing tasks of this nature, there is a need for applications that have a variety of ideas and can judge a student’s performance level. This result aligns with the studies conducted by Anna (2019) Al-Hamad et al. (2020); Mfaume (2019) and Tbakhi (2020).

Moreover, Table 3 exhibits a mean value of 4.41 and a standard deviation of 0.35 for the domain of managing the evaluation process. The item that demonstrates the highest average value is item 16, which is related to “Evaluating students’ performance to improve their achievement levels.” The aforementioned item obtained a score of 4.69. The item labeled 18, which addresses “Evaluating the impact of new educational programs on students’ cognitive and skill levels”, demonstrated the lowest mean score (4.13) compared to all other items. One possible explanation for this phenomenon can be ascribed to the desire to streamline and simplify the testing process for educational institutions and their instructors through the utilization of electronic applications. This approach offers advantages such as time and effort savings, as well as enhanced accuracy and efficiency in the correction, monitoring, and tallying of assessments. Additionally, the evaluation process encompasses various forms and necessitates diligent oversight and adequate attention from the administration. Consequently, the adoption of electronic testing methods presents a viable solution to address these multifaceted requirements. There are several applications available that facilitate

the administration of tests, offer a diverse range of questions, and closely resemble traditional classroom assessments. These applications enable the creation of tests featuring both essay and objective questions, prompting school principals to provide guidelines on their utilization. This result aligns with the studies conducted by Mohammadi et al. (2020); Nikolopoulou (2020), and Tbakhi (2020).

Furthermore, the data provided in Table 3 illustrates that student affairs management has a mean value of 4.42 and a standard deviation of 0.34. One of the components encompassed by the construct of student affairs management that demonstrates the most elevated average score is item 22. This particular item asserts “Follow up on students’ data (health and social)”, and it has received a mean score of 4.71. Among all the questions, Item 26, which pertains to “Sending midterm and final certificates and follow-up reports to parents”, received the lowest mean score of 4.35. The rationale behind this phenomenon can be ascribed to the school administration’s commitment to student affairs, encompassing the provision of essential information and effective communication. The administration demonstrates a strong emphasis on fostering trust with students and their parents, thereby making concerted efforts to disseminate up-to-date information and significant dates. Smartphone applications have the potential to effectively facilitate and augment these educational offerings, thereby assisting individuals in their ongoing learning endeavors. Smartphone applications offer and facilitate many functionalities such as reminder messages, and alert notifications, as well as the ability to send and receive data in diverse formats. This result aligns with the studies conducted by Tbakhi (2020) and Alfaiakawi et al. (2022).

lastly, the data provided in Table 3 illustrates that employee management has a mean value of 4.54 and a standard deviation of 0.31. One of the components encompassed by the construct of employee management that demonstrates the most elevated average score is item 37. This particular item asserts “Facilitating staff communication with students’ parents”, and it has received a mean score of 4.75. Among all the questions, Item 34, which pertains to “Training employees on the necessary programs and applications”, received the lowest mean score of 4.38. The rationale for this phenomenon can be ascribed to the resemblance between administrative tasks and the functionalities of prevalent smartphone applications, which revolve around the exchange of messages, images, and diverse file formats. This enhances the potential for utilizing these applications in educational contexts that rely on communication and have similarities with their primary functionalities. Undoubtedly,

applications are often regarded as the most efficient and expeditious means of conveying messages, disseminating circulars, and retrieving administrative files that necessitate regular and occasionally time-sensitive evaluation. Applications, due to their functionalities, serve as compact workspaces that enable users to explore, transfer, and modify files. Consequently, it is a prudent decision for educators to utilize these applications, as it aligns with the

school's administrative objectives. This result aligns with the study conducted by Tbakhi (2020).

The study utilized an independent sample t-test to assess the statistical effectiveness of the degree of use of smartphone applications in managing the educational process in schools in the Zarqa Governorate from the point of view of teachers based on the factors of gender and level of qualification, addressing the second research question.

Table 4: Independent Samples T- test.

Variables	N	Mean	St.dev	df	t	Sig
Female	75	4.12	0.43	228	1.005	0.081
Male	155	4.17	0.36			
Undergraduate degree	170	4.15	0.37	228	1.010	0.072
Postgraduate degree	60	4.10	0.40			

Based on the data shown in Table 4, it is evident that the average score for male respondents on the extent of utilizing smartphone applications in educational management within schools in the Zarqa Governorate, as perceived by instructors, was 4.17. Conversely, the average score for female respondents was slightly lower at 4.12. In addition, the chart displays the average score for the extent of smartphone application usage in educational management across schools in the Zarqa Governorate, as perceived by teachers holding an undergraduate degree, as 4.15. Conversely, teachers with a postgraduate degree reported a mean score of 4.10. The statistical significance (Sig) values of 0.081 and 0.0672, obtained from comparing two groups based on gender and level of qualification respectively, indicate that neither gender nor level of qualification had a significant influence on the extent of smartphone application usage in educational management among teachers in schools located in the Zarqa Governorate. The findings of this study are incongruent with the research carried out by Tbakhi (2020).

CONCLUSION

The main objective of this research study was to investigate the extent to which instructors in the Zarqa Governorate utilize smartphone applications for educational management purposes. The findings of the study indicate that the utilization of smartphone applications has been shown to yield beneficial outcomes in the management of the educational process within schools located in the Zarqa Governorate, as perceived by instructors. The researcher posits that the observed outcome is rational and can be ascribed to teachers' enhanced comprehension of leveraging smartphones and their applications to effectively manage the learning

process in its entirety. Additionally, teachers have acquired the necessary skills to utilize these time- and effort-saving tools, thereby augmenting the quality of educational services during this substantial expansion. The current global circumstances resulting from the COVID-19 epidemic have led to smartphone applications becoming a viable solution for addressing many technology challenges encountered by schools in the realm of student education. The prevalent utilization of smartphone applications in the domains of educational instruction and assessment administration may be attributed to this phenomenon. The prevalence of smartphone applications in the domains of staff and student management can be ascribed to the deliberate approach in leveraging their advanced functionalities for comprehensive school administration.

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