Examining the Efficacy of Universal Design for Learning (UDL) Training in Meeting the Needs of English Language Learners with Disabilities

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Abstract

This study looks into the succession of the UDL training for teachers and then how their implementation of the UDL principles for their classrooms could bring about better educational outcomes for the ELLs who are in addition to the special needs setting. The testing of the Asir region in Saudi Arabia in our research was done by pre-and post-training tests, trying to find changes in the teachers' knowledge, the ways they apply UDL and their views about inclusion. Findings indicate the level of efficiency achieved in all areas(post-training), which illustrates a strong connection between ULD principles' improvement and their practical application in classrooms. The study shifts the focus to the key factor that professional development plays in obtaining, maintaining, and reforming educational processes, which are successfully able to answer the questions of diversity. Problems about inadequate resources and ongoing expertise support were seen to be the issues which further indicate the need for thoroughness in bringing UDL to education systems universally. These results confirm the importance of UDL training in teacher education, which in turn gives rise to the development of inclusive education along with further provision of equal courses for students with disabilities.

Keywords: universal design for Learning, inclusive education, teacher training, English Language, learners with disabilities.

Introduction

Although the sophisticated structure of today's classrooms provides a challenge to educators that concerns the support of English language learners with special needs, it also has multiple opportunities, for instance, for having them integrate into the same classroom. These students usually have learning problems and can double up their challenges because of language issues. They can also strive for either learning or other disabilities. The demographics will keep evolving, dividing the classrooms into diverse groups. Therefore, it is a priority for educational institutions to adopt teaching strategies that cater to the needs of the students. Among many other didactic models which were developed to fight complexity issues, Universal Design for Learning (UDL) was known for its capability to comply and at the same time adapt to a variety of needs of learners this was because of the relaxed learning environment and also the accessibility of the curriculum material (Valtonen et al., 2021; Starkey et al., 2021).

UDL philosophy is about designing the educational systems and the resources, focusing on creating the environments and resources suitable for all learners, and these environments and resources eliminate universal barriers to the learning process (Palumbo, 2024). This type of instruction is driven by rules that stress the idea of giving learners different ways of representation, expression, and engagement, and these are the most important factors which distinguish ability between students with various needs. For ELLs who have disabilities, educational outcomes would be tremendously improved by the use of UDL, because it provides a structured yet scaffolded but also student-friendly route to learning (Syre-Hager, 2022).

The acknowledgement of UDL seems to be getting more mainstream as the education environment is embracing it; however, research on its efficacy, specifically among ELLs with disabilities, is still very scarce (Kamuru, 2020). It is prudent to do a critical analysis of how UDL affects this group since they constitute the population that is often not the focus of educational research, and yet they are over-represented in educational categories, including under-achievement and school dropout rates. To bridge the gap between pedagogical practices and the actual reforms, this experiment aims to quantify the effectiveness of UDL training programs for educators in the academic performance and engagement of ELLs with disabilities.

The general advantages of UDL for heterogeneous classrooms have been previously described in different studies, stressing its importance in different learning areas along with the improvement in student engagement (Lakkala & Kyrö-Ämmälä, 2021; Saffar, 2020). As these studies are mostly not designed to look at the issues concerning language acquisition and psychiatric conditions concomitantly, researchers have to concentrate on them separately. Furthermore, the part of teacher training in UDL principles is found to be the one

factor that has been neglected in these studies. Successful teaching of UDL involves teachers not only intuitively understanding the concepts but also being innovative in applying them in interactive teaching and learning environments (Griful-Freixenet et al., 2021; & Navaitienė & Stasiūnaitienė, 2021).

Research though that if teachers are provided ongoing support and tools to integrate UDL principles into their teaching, they will get more advanced that * Instruction: The brand's mission statement should be three to four sentences long and accurately reflect the values, goals, and the unique selling point of the brand. Particularly valuable for a teacher working with a student who has both a language barrier and special needs, such training brings to the teacher's disposal techniques to simultaneously address the language gap and the learning difficulties (Stehle Wallace et al., 2022; Yuan et al., 2022).

1.1 The Problem of Study

The mixed school education system of ELLs with disabilities is marked by complex problems. To assist them in taking equal learning opportunities, we recommend specialised instructional methods that will accommodate their different needs. While the use of Universal Design for Learning (UDL) has proved to be theoretically vital in ensuring equitable educational chances, there is still a huge gap in emphasis on its application research, especially that which is meant to show whether UDL training works for educators. The absence of a clear policy on UDL is reflected in the varied implementation and application of UDL principles in classrooms, which in turn results in suboptimal educational outcomes for ELLs with disabilities. Students in this group face different hurdles, and many of these obstacles are not tackled by traditional teaching methods; hence, inequality in learning and participation is escalating. This study aims to address the seemingly neglected issue of whether or not UDL training impacts teachers to be specifically helpful educators to their students with disabilities through empirical evidence.

1.2 Research Questions

1. How does UDL training influence the academic performance of ELLs with disabilities in inclusive classrooms and teachers' instructional strategies after undergoing UDL training?
2. How do teachers perceive the benefits and challenges of implementing UDL principles following their training, particularly in relation to ELLs with disabilities?

1.3 Significance of the Study

As this research pinpoints the necessity of the practices in education that will correspond to the needs of both ELLs as well as disabled students, who traditionally have low rates of academic success, it becomes the key area for the development of this concept. Through the prism of UDL—a teaching method that maximises learning for all through learner variability— this investigation aims to determine the impact of training in UDL for educators via scientifically proven evidence. The findings could be used to design policies and educational programs that aim to eliminate educational inequalities and to give all ELLs with disabilities access to quality education. Also, this will enrich the theoretical knowledge about how UDL designs can be implemented in classrooms with different students, which can serve as a model for other institutions trying to improve their inclusivity approaches. Results for the most part would inspire additional targeted professional development programs and would possibly contribute to more universal systemic transformations in how educational organisations orient their teachers to effectively cope with the tasks associated with diverse learning environments.

1.4 Terms of the Study

The study tracks a period during which the UDL training and its monitoring are done. The range of the study includes the initial stage of data collection, which includes evaluation of the current teaching practices and academic progress of the students, followed by the period of UDL teaching sessions. Post-training data collection occurs at two points: straight away (just) following the training and in six months (later on) to test both immediate and long-term effects of the training on learning outcomes. The period of this study provides a basis for the analysis of the sustainability of the changes in teaching practices and the lasting effects of UDL training on the achievement of ELLs with disabilities.

1.5 Limitations of the Study

The research has some issues related to the research's reproducibility, as well as people's behavioural interpretation. The first thing is the sample size and the setting that can limit the validity of the results to other educational contexts or geographic areas. As for the second point, the schools' teachers' opinions about different instructional strategies that the leadership has suggested may not be unbiased or impartial. Therefore, the data brought in by the schools' teachers and their assessments of certain aspects of the strategies introduced by the leadership might not be accurate. Additionally, the study's design is modified to capture short-term and medium-term effects; yet, the long-term educational outcomes might be neglected, and these outcomes are highly significant for underscoring the sustainability of the UDL training program. Furthermore, the fact that the quality and depth of UDL training received by the participants might differ may also lead to a situation where the observed changes are not directly attributable to the training. The accumulated and inexplicable nature of the studies emphasises the care in interpreting the findings and identifying the areas that require deeper investigation.

2. Literature Review and Previous Studies

Universal Design for Learning (UDL), proposed by the Centre for Applied Special Technology (CAST), not only should enhance and strengthen the way teaching and learning occur, but also is based on a growing body of neuroscience about how people naturally learn.

UDL is a movement that aims to create instructional goals, methods, materials, and assessments that are for everyone, and not a single, one-size-fits-all solution, but rather flexible approaches that can be customised and adjusted according to individual needs (Zhang, 2020). It is structured around three main principles: multiple ways of conveying, which give breath to the different learners in the process of perception and understanding of the course content; multiple means of expression, together with which the learners accept various approaches for demonstration of acquired ideas, information, and knowledge; and multiple means of engagement, that are aimed at making diverse learners interested in the process, challenge them as the need arises, and encourage them to meet the learning expectations.

English Language Learners (ELLs) with disabilities are a unique subset of the student population that faces dual challenges: acquisition of a new language through experiencing all the challenges of this process and overcoming learning difficulties as a result of their disabilities. The study has proved that these students tend to have lower academic achievements, higher dropout rates and less favourable educational outcomes than their peers (Fujiyama et al., 2021). Zhang et al. (2022) pointed out that it requires both multidisciplinary capacity and specialisation in language education to meet the needs of these students because they have to handle both language learning and their specific disabilities.

The proof of the implementation of UDL principles can be obtained through the studies done across different educational settings, and this shows that UDL has good outcomes in improving inclusiveness in class. An extended study by AlRawi & AlKahtani (2022) showed that the UDL implementation is effective in satisfying the different needs of all students, including students with disabilities. To begin with, UDL yields particular benefits, i.e.. appealing and effective learning via assorted means of learning and assessment (Hayward et al., 2022).

In the ELLs' case, Craig et al. (2022) studied the influence of the UDL style of instruction on the pupils' grammar and literacy. Their results indicate that UDL helps ELL students achieve higher grades through a concurrent content learning integration with language mastery, which further supports them during language (second) language acquisition and curriculum access.

Despite the probable advantages of UDL, its effectiveness largely depends on the well-trained and well-prepared educators who can apply its principles in the right way. Spooner, Nantwi et al. (2023) highlighted the necessity of professional development for UDL; they emphasised that only those teachers know how to design different learning strategies that could suit diverse learners. In the same vein, Donnelly (2020) revealed that teachers who had a proper UDL training background were more likely to incorporate inclusive learning strategies in the classroom.

The search for a study on the training of teachers working with ELLs with disabilities is virtually nonexistent, but it is a must. McBeth (2021) is one of the few studies in this field, showing that if teachers participate in a course on UDL, they will feel more proficient and able to make adjustments to both materials and instructional strategies based on their students' needs. Next, the history of UDL will also be covered in the research. The origins and evolution of UDL will be discussed, highlighting the importance of personal these researches repeatedly show how the professional development of UDL is as essential as including this education in the educational system of our society.

3. Methods

The study was a quasi-experimental design to quantitatively evaluate the effectiveness of the UDL training for teachers in improving the academic results of ELLs with disabilities. It was completed in the Asir region, particularly in the city of Abha, Kingdom of Saudi Arabia.

3.1 Participants

The sampling technique that was used to recruit the study participants was stratified random sampling, which was aimed at having a representative sample of the educators who teach ELLs with disabilities from across different schools in Abha. At first, schools were divided into two main groups: either by size or by type (public or private), and from each group, a random sample of schools was chosen. Thereafter, the winning schools were chosen for this study, namely, a group of teachers in every school were randomly selected to take part in the study. Finally, 120 experts who were the teaching of these two particular student groups were selected.

3.2 Instruments

For this study, the main device used to measure the effect of Universal Design for Learning training on teachers was a specially designed structured questionnaire. The questionnaire was divided into three main areas to be able to cover all of the study variables. The first sub-section examined teachers' basics and practices related to the implementation of the main core elements of UDL philosophy before the training. After the training, the second section examined any significant changes in their understanding and application of these principles. The fourth part was focused on the evaluation of teachers' opinions about the UDL training, regarding teachers' opinions about efficiency and ease of UDL strategies implementation in the teaching framework.

In a bid to provide varying validity and applicability of the questionnaire, a pilot study was conducted with a small group of teachers from a school not involved in the main study to get feedback. The feedback received from this pilot was the main factor in redesigning the questionnaire, which made it more reliable and valid before it was used in the larger study.

3.3 Data Collection

Data collection for this study was carried out in two phases to gather a complete picture of the UDL training's effects. The initial questionnaire for the pre-training was conducted among all the participant teachers. This stage was designed to set a foundation for further

recognition of the existing teachers' knowledge and skills in the service of UDL principles before any change. This baseline assessment was followed by the teachers who went through the UDL training program. The program consists of a series of workshops, practical sessions and continued support at every stage for six months, to make learners penetrate deep, and equip them with the tools to promote the practical application of UDL in everyday teaching.

The next phase of my data collection after the program took place was after I had completed the training plan. In the end, the same teachers who were given the post-training questionnaire filled in the questionnaire. It determined the teachers' application of differentiation and perception towards the implementation of the UDL principles as outcomes of the workshop. The two-pronged approach was in place during this phase, which helped in comparatively examining the way teachers utilised UDL before and after a training program. This ensured that the efficacy of the training program was not overlooked.

3.4 Statistical Analysis

The data from the questionnaires were analysed using a variety of statistical tests to quantify the training's effect on both the teachers' practices and perceptions, as well as on the students' academic performance. Primarily, a paired t-test was applied to contrast the pre- and post-training tailored answers, which supported the evaluation of the significant enhancement in the teachers' knowledge, implementation of UDL principles and UDL teaching practices. Additionally, the model utilises multiple regression analysis to determine the correlation between the level of implementation of UDL concepts and the academic success of the students.

In addition, Analysis of Covariance (ANCOVA) was used to control for the potential confounders and to examine the effect of various demographic and contextual factors on the success of the UDL training. Additionally, correlational analyses were run to establish the extent to which the teacher populations perceived the UDL training and reported the application of the strategies obtained from the training in their classroom settings.

4. Results

Table 1. Descriptive Statistics for Teachers' Knowledge of UDL Principles

Statistic	Pre-Training (n=120)	Post-Training (n=120)
Mean Score	65.3	78.5
Standard Deviation	8.6	7.2
Minimum Score	45	56
Maximum Score	85	95

This table shows the average scores of teachers on a knowledge assessment about the UDL principles before and after the training. The average has climbed up by 65. 3 in the pre-training to 78.5 in the post-training, which shows a significant enhancement in teachers' understanding of UDL principles. The deviation is divided by 8.6 to 7, 2 might support the idea that the participants' scores after the training were more consistent compared to before the training, indicating that everybody's learning content was of the same quality.

Table 2. Descriptive Statistics for Teachers' Application of UDL Strategies

Statistic	Pre-Training (n=120)	Post-Training (n=120)
Mean Score	60.2	75.9
Standard Deviation	10.4	6.5
Minimum Score	38	60
Maximum Score	82	90

Table 2 contains the scores related to the practical application of UDL strategies in the classroom by teachers. Scores go up to 80 on average, 2 to 75. 9, post-training, enabled me with easy-to-apply UDL techniques in teaching. The drop in standard deviation of the average levels of application after the training indicates that the training was effective across a wide range of individual starting points.

Table 3. Descriptive Statistics for Teachers' Perceptions of UDL Benefits

Statistic	Pre-Training (n=120)	Post-Training (n=120)
Mean Score	58.0	80.0
Standard Deviation	12.3	5.1
Minimum Score	30	68
Maximum Score	78	92

The data in Table 3 explores teachers' attitudes towards UDL advantages for students with disabilities and ELLs. Following the training, there is a noticeable positive shift in the benefits perceived, with the average score jumping to 80. 0 to 80. 0. The smaller standard deviation post-training shows that teachers are more alike in their opinion about the advantages of UDL after the training, which may be linked to their better knowledge and application scores.

Table 4. Paired t-Test Results for Teachers' Scores

Variable	Mean Difference	t-Statistic	df	p-Value	Effect Size (Cohen's d)
Knowledge of UDL	13.2	11.24	119	<0.001	1.03
Application of UDL	15.7	13.28	119	<0.001	1.21
Perceptions of UDL	22.0	16.95	119	<0.001	1.55

The paired t-test for teachers about their understanding of UDL concepts now has a mean of 13.2 points post-training. The t-statistic of 11.

24 with a p-value lower than 0.001. This statistical significance proves that the training was a major contributor to the transformation of teachers' knowledge and level of comprehension in UDL. The size of the effect, Cohen's d, is 1.03, showing a huge impact of the training on the knowledge acquired.

As for the UDL, the mean value decreases by 15.7, - a t-statistic of 13. 28, which is also less than 0 1 001. This shows that there is also a good chance in the way they use UDL in the classroom after going through training. The extent of the impact is still bigger (Cohen's d = 1.21), which shows a high effect of training on teachers' practical implementation skills.

The perceptions of UDL benefits have the biggest mean difference of 22 0 points. With a t-statistic of 16,0. 95% and the p-value < 0.001, this result is highly significant, which means that the training significantly improved teachers' perceptions of the effectiveness of UDL for ELLs with disabilities. The effect size (d = 1.55) is large, as it highlights the significant consequence of the training on teachers' attitudes toward UDL.

Table 5. Multiple Regression Analysis for Post-Training Knowledge Scores

Predictor	B (Coefficient)	Standard Error	Beta (Standardised Coefficient)	t-Statistic	p-Value
Pre-training Score	0.45	0.05	0.55	9.00	<0.001
Years of Experience	0.20	0.07	0.18	2.86	0.005
Level of Education	1.22	0.36	0.21	3.39	<0.001
Age	-0.02	0.02	-0.07	-1.00	0.320
R^2			0.62		

The regression model of post-training knowledge scores, which reflects a strong relationship with the predictors, is shown. The pre-training scores have a positive coefficient, which means that the higher initial knowledge levels are the more significant positive predictor of the learning gains from the UDL training. Finally, it is notable that the years of experience and level of education are strong predictors, reflecting the fact that more experienced and highly educated teachers are likely to have better post-knowledge outcomes after the training. The portrayal of age as negative, although not statistically significant, indicates such a slight decrease in effectiveness with age. The model explains 62% of the variance in post-training knowledge scores (R^2= 0.62), which means a good fit.

Table 6. Multiple Regression Analysis for Post-Training Application Scores

Predictor	B (Coefficient)	Standard Error	Beta (Standardised Coefficient)	t-Statistic	p-Value
Pre-training Score	0.38	0.04	0.48	9.50	<0.001
Years of Experience	0.12	0.06	0.13	2.00	0.048
Level of Education	1.10	0.33	0.20	3.33	<0.001
Age	-0.01	0.01	-0.05	-0.90	0.370
R^2			0.58		

Likewise, the education and pre-training scores variables are influential in the model for post-training application scores as well, showing positive associations. The smaller coefficient and the significance of the years of experience suggest that it has a less pronounced but still positive effect on the application ability. The model as a whole gives an account of 58% of the variance (R^2= 0.58), demonstrating that although the relationship is still rather strong, it is not as high as in the case of knowledge outcomes.

Table 7. ANCOVA Results for Post-Training Knowledge Scores

Source	df	Sum of Squares	Mean Square	F-Statistic	p-Value	Partial Eta Squared
Covariate						
- Pre-training Scores	1	4800.56	4800.56	115.20	<0.001	0.49
- Level of Education	1	260.74	260.74	6.26	0.013	0.05
Main Effect - Training	1	1500.23	1500.23	36.00	<0.001	0.23
Error	116	4830.00	41.64			
Total	120	11391.53				

ANCOVA showed that changes in post-training knowledge scores were influenced by pre-training scores and UDL training, even after conditioning for education level. The F-statistic was 115. 20. 0 and a P-value < 0.05. Among all other variables, with a Pearson correlation coefficient value of 0.72, the pre-training knowledge significantly predicts the post-training knowledge, which explains 49% of the variance in the outcomes (Partial Eta Squared = 0.49). Thus, teachers with higher initial knowledge tend to benefit most from this training.

This covariate also shows a significant but smaller effect on the outcome (F-statistic = 6.26, p-value = 0) 0 13. The author adds another 5% that was not accounted for in the rest of the equation. The educational level of the teacher is positively correlated with post-training knowledge improvement. The training itself has a great impact on increasing post-training knowledge scores (F-value = 36. 00, p-value < 0. In 001) the partial eta squared equals 0. 23. It shows that the training explained about 23% of the variance in the final scores on the knowledge test, which were adjusted for the initial knowledge levels and background of the teachers.

Table 8. Correlation Analysis Results

Variable	Correlation Coefficient (r)	p-Value
Knowledge vs. Application Scores	0.87	<0.001
Knowledge vs. Perception Scores	0.82	<0.001
Application vs. Perception Scores	0.79	<0.001

The correlation between the post-training knowledge scores and the application scores is 0.1. -87, which can be interpreted as a strong positive relationship. It implies that the higher the teacher was knowledge of UDL principles, the higher their ability to apply it to their practices of teaching. The statistical significance ($p < 0.001$) shows that this is a true finding in the sample.

Moreover, the position of the coefficient between the knowledge scores and the perceptions of the benefits of UDL is also high and positive ($r = 0$). 82, $p < 0$. One of the main outcomes of this study is a positive correlation between teachers' knowledge of UDL principles and their positive understanding of how useful UDL is. This relationship highlights the influence of a well-informed awareness on the teachers' attitudes towards educational methods.

There is a high degree of significant reliance on the association ($r = 0$). 79, $p < 0.001$), whether teachers apply UDL principles well or not, and what their views are about this method. This discovery shows that the teachers who are better at implementing UDL in their classrooms are the ones who are more likely to think that it is beneficial. This could be because applying a UDL framework may strengthen their faith in the strategy's effectiveness.

5. Discussion

The professional development of teachers in using UDL principles has been conducted systematically, in a significant change in teachers' understanding of UDL applications is apparent. The success of teachers' training and development within an educational reform is the key factor. The improvements in teachers' knowledge and the practical application of UDL, as shown by this study, are in line with the recent research that emphasises the need for not only basic training but also continuous support for the effective implementation of these methods (Lumando et al., 2023; Kilag et al., 2023). Already, professional development of this kind has become indispensable because it helps apply the most immediate professional benefits in the long run.

However, the direct relationship between the implemented UDL principles and the teacher's practical experience in classrooms (Craig et al., 2022) could be a great promotion for conducting a training program that will competently bridge the theory with the practice. This synthesis is vital for teachers to not just understand the 'what' but also the 'how' of the application of these principles in different education settings. In this case, the former is more individualistic and does not require teachers to practice the method repeatedly during their work. Rather, teachers can apply the strategies in their classrooms in a more sustained way.

Nonetheless, the effectiveness of the aforementioned UDL training is concluded to extend beyond the study, enlightening the future of education quality and equity as well. With teachers becoming more and more proficient in UDL strategies, they play a very important role in creating a more inclusive classroom where all students, regardless of their learning needs, are given more opportunities to succeed. The rippling effect of professional development on what is UDL not only intensify individual teacher efficiency, but it also leads to better educational results, whose equal learning environments have come out for the diverse student population.

Inclusivity in education is more and more regarded as the basis for the right teaching and learning practices worldwide. The introduction of UDL in regions like Asir province of Saudi Arabia denotes a step towards realising that students can successfully learn and be successful notwithstanding their diverse needs, which, in the case of ELLs with disabilities, is ensuring they are helped to thrive (Hoidn & Klemenčič, 2021). This shift in local education systems is meant to blend with global trends, that is, educational systems must advance to provide equitable opportunities for all learners to educate themselves (Raina, 2020; Sundoro et al., 2024).

The significant change in teachers' attitudes towards inclusiveness after the UDL training, as revealed in this study, is what is most striking. The UDL training given should focus on providing the right skills to the teacher, which also means a difference in their opinions about inclusive education being an integral part of the school (Deets, 2023). Building teachers' mindsets towards diversity is not a decaffeinated process, as it sets the stage for educators' dedication and advocacy to inclusivity within their schools and communities. Furthermore, the practical implementation of UDL principles, which is currently gaining momentum due to the global trend towards inclusivity, has indeed challenged the traditional teaching norms and promoted a more learner-centred approach. It mirrors the main principles of inclusive education, reinforces the education community and thereby serves both the students with disabilities as well as other learners in their interaction, which helps to build a diverse classroom culture overall that values diversity and promotes a supportive learning environment.

Addressing the challenges of implementing UDL, which, in some cases, may present insufficient conditions to work with the values of inclusive education for all, requires some effort. This study illustrates that while UDL training is beneficial for teachers in terms of their competencies, in reality, the implementation of these strategies can be limited by external factors like lack of resources, insufficient professional support, and strict curriculum guidelines (Gkrimpizi et al., 2023; Jayabalan et al., 2021). These challenges pose a need to adopt holistic strategies that are not confined to training teachers but also aim at observing and eliminating such features of the system that inhibit the effort to motivate inclusive practices.

6. Conclusion

This study aims to address the seemingly neglected issue of whether or not UDL training impacts teachers to be specifically helpful educators to their students with disabilities through empirical evidence. Teachers' backgrounds, as examined in the study findings, showcase their personal and professional histories, which essentially determine teachers' ability to adopt and succeed with the UDL approach (Griful-Freixenet et al., 2021). Hereby, one can perceive the value of individualised, bespoke teaching strategies which take into account the individual teacher's knowledge, expertise, and current practice. Such profession-specific development can indeed be a comprehensive way of closing the gaps in knowledge and skills, making the training more relevant and effective. Furthermore, these difficulties of implementation denote the fact that UDL implementation expresses the necessity of institutional support, ie, the leadership commitment and policy backing, which could be directionally given where UDL can be realised. The schools and educational organisations ought to offer and provide ongoing help facilities, mentorship and communication platforms amongst educators so that they can maintain the trail of training, and use UDL as a regular practice.

7. Recommendations

This research confirms that the UDL training that is focused on teachers in inclusive classrooms is very important, and it is more about ELLs with disabilities. By gaining knowledge and skills from structures and repetitive training, teachers managed not only to gain proficiency but also to change their perceptions about inclusive education. Consequently, the data provides evidence of the role of a consistent source of assistance and resources in applying the knowledge acquired at the initial stage into long-term education plans, which is shown by strong relations between improved knowledge and the way of the use of the UDL approach and favourable views about inclusion. The mentioned difficulties—like limited resources and the need for continuous assistance—clearly emphasise the importance of a comprehensive strategy in the implementation of UDL. For this purpose, policymakers and school administrators must finally prepare the programmes for teachers according to these key components. Considering the abovementioned factors in designing the teacher training programmes is a must. These findings therefore suggest that UDL should be one of the key strategies for academic disparities and inequalities between environments in the education policy and practice through continuous professional development.

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Authors' contributions

Dr. Wafa' A. Hazaymeh and Dr. khasawneh were responsible for study design and revising. Dr.khasawneh was responsible for data collection. Dr. Wafa' A. Hazaymeh drafted the manuscript and Wafa' A. Hazaymeh revised it. All authors read and approved the final manuscript. In this paragraph, also explain any special agreements concerning authorship, such as if authors contributed equally to the study.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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