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Judul Artikel yang direview:	:	*Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative*
Bulan, Tahun Artikel yang direview	:	September 2024 (1st *Round*)

[JL4D] Journal of Learning for Development - Review Request

Dr Tony John Mays via eJournal of Learning for Development <noreply@jl4d.org>
Reply-To: Dr Tony John Mays <tmays@col.org>
To: Sri Wahyuni <wahyunis@edu.uir.ac.id>

Mon, Sep 9, 2024 at 11:18 PM

Dear Sri Wahyuni:

I believe that you would serve as an excellent reviewer of the manuscript, "Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative," which has been submitted to Journal of Learning for Development . The submission's abstract is inserted below, and I hope that you will be able to undertake this important task for us.

Review guidelines are available here: Review guidelines JL4D v2.pdf

Also, if you have not done so recently, please update your reviewer profile to let us know if your research interests or affiliation have changed.

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Thank you for considering this request and a reminder to confirm your ability to complete the review.

Please note that JL4D does not issue Certificates for Reviews. However, we acknowledge all reviewers for the previous year in the Editorial of the March issue.

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"Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative"

Abstract

The purpose of this research was to assess the efficacy of a professional development program in enhancing the proficiency of instructors in Abha, Saudi Arabia, in using assistive technology for English Language Learners (ELLs) with impairments. The study used a quasi-experimental approach to examine the impact of an intervention. The research assessed the modifications in teachers' understanding and effective implementation of assistive technology (AT) by using the Teacher Assistive Technology Proficiency Survey (TAPS) and the Classroom Assistive Technology Application Scale (CAAS). Both pre- and post-intervention evaluations were carried out. The findings indicated significant improvements in both self-reported expertise and observed use of assistive technology in classroom environments after the intervention. The research also examined the correlation between instructor competency and classroom applicability. The study revealed a modest positive association, while also indicating the significance of other variables like as institutional support and teacher attitudes towards technology. The results underscore the need of implementing comprehensive professional development programs that can successfully integrate assistive technology into instructional methods. Consequently, this facilitates the advancement of more comprehensive instructional methodologies for English Language Learners (ELLs) who have impairments.

Review:Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative

Request for Review

You have been selected as a potential reviewer of the following submission. Below is an overview of the submission, as well as the timeline for this review. We hope that you are able to participate.

Article Title

Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative

Abstract

The purpose of this research was to assess the efficacy of a professional development program in enhancing the proficiency of instructors in Abha, Saudi Arabia, in using assistive technology for English Language Learners (ELLs) with impairments. The study used a quasi-experimental approach to examine the impact of an intervention. The research assessed the modifications in teachers' understanding and effective implementation of assistive technology (AT) by using the Teacher Assistive Technology Proficiency Survey (TAPS) and the Classroom Assistive Technology Application Scale (CAAS). Both pre- and post-intervention evaluations were carried out. The findings indicated significant improvements in both self-reported expertise and observed use of assistive technology in classroom environments after the intervention. The research also examined the correlation between instructor competency and classroom applicability. The study revealed a modest positive association, while also indicating the significance of other variables like as institutional support and teacher attitudes towards technology. The results underscore the need of implementing comprehensive professional development programs that can successfully integrate assistive technology into instructional methods. Consequently, this facilitates the advancement of more comprehensive instructional methodologies for English Language Learners (ELLs) who have impairments.

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The article is related to the field of learning for development.

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- Somewhat
- No

The article is complete, clear and well-organized.

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- Somewhat

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- Somewhat

The problem is clearly described within a theoretical framework (where appropriate).

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The research design and methodology are appropriate for the study.

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- ( ) Somewhat

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The article uses sound argument and analysis.

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- ( ) No
- ( ) Somewhat

The conclusion describes implications for practitioners in learning for development practice.

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- ( ) No
- ( ) Somewhat

The article uses an acceptable standard of English.

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- ( ) Somewhat

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- ( ) Accept
- (●) Accept with revisions
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Comments to Author

this article provides an important contribution to the field of learning for development, particularly in the context of inclusive education and teacher professional development. This work will become even more impactful with some adjustments, particularly in the theoretical grounding, comparative analysis, and discussion of long-term sustainability.

Comments to Editor

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Enhancing Teacher Knowledge and Application of Assistive Technology for English Language Learners with Disabilities: A Professional Development Initiative

Abstract: The purpose of this research was to assess the efficacy of a professional development program in enhancing the proficiency of instructors in Abha, Saudi Arabia, in using assistive technology for English Language Learners (ELLs) with impairments. The study used a quasi-experimental approach to examine the impact of an intervention. The research assessed the modifications in teachers' understanding and effective implementation of assistive technology (AT) by using the Teacher Assistive Technology Proficiency Survey (TAPS) and the Classroom Assistive Technology Application Scale (CAAS). Both pre- and post-intervention evaluations were carried out. The findings indicated significant improvements in both self-reported expertise and observed use of assistive technology in classroom environments after the intervention. The research also examined the correlation between instructor competency and classroom applicability. The study revealed a modest positive association, while also indicating the significance of other variables like institutional support and teacher attitudes towards technology. The results underscore the need to implement comprehensive professional development programs that can successfully integrate assistive technology into instructional methods. Consequently, this facilitates the advancement of more comprehensive instructional methodologies for English Language Learners (ELLs) who have impairments.

Keywords: assistive technology, professional development, inclusive education, English Language Learners

Introduction

Nowadays, assistive technology (AT) has emerged as a crucial component of education, offering promising prospects for English Language Learners (ELLs) who have impairments. The platform provides an extensive array of resources, including fundamental hardware and sophisticated software, specifically designed to assist pupils in surmounting educational obstacles. The research conducted by Smith and Johnson in 2022 illustrates the capacity of assistive technology to provide equitable and all-encompassing educational experiences. The Individuals with Disabilities Education Act (IDEA) mandates the provision of assistive technology (AT) and underscores the need to incorporate it into educational planning. This demonstrates a dedication at the policy level to safeguard the educational entitlements of children with disabilities (Tefera & Fischman, 2020).

Saudi Arabia is now engaged in educational reform. Incorporating assistive technology into their education system is a strategic move to enhance inclusivity and modernize their approach, in line with the objectives of Saudi Vision 2030 (Alfozan, 2022). Nevertheless, properly using assistive technology presents several obstacles, particularly for English Language Learners (ELLs) who have impairments. These children have the additional challenge of acquiring a new language while also managing their disability within an educational environment (Zakarneh et al., 2020).

An essential factor of this journey is the level of readiness educators possess to effectively harness the capabilities of assistive technology. Khasawneh (2024) suggests that there is a discrepancy

between the accessibility of assistive technology tools and the proficiency of instructors in using them efficiently in Saudi Arabia. The difficulties of teacher readiness are crucial since they greatly affect the educational experiences and outcomes of these pupils.

It is essential for educators to actively facilitate the use of assistive technology. They play a crucial role in enabling the effective adoption and use of modern technologies in the classroom (Liang, 2021). Hence, educators need to undergo professional development in this domain. Cevheroglu (2023) emphasizes the significance of instructors possessing a comprehensive comprehension and proficiency in assistive technology (AT) to facilitate the academic and social success of English language learners (ELLs) with impairments. In locations such as Abha, where there is a varied student population, it is crucial to take into account the distinct backgrounds and requirements of the students (Khasawneh, 2023).

The current literature, particularly in the Saudi educational context, lacks sufficient research on the effects of professional development programs that specifically target the use of assistive technology in teaching English Language Learners with disabilities. This highlights the pressing need for further study in this area (Thapliyal & Ahuja, 2023). Hunt (2021) argues that there exists a substantial disparity in the use of assistive technology (AT) resources, which they attribute to insufficient training provided to instructors in this domain. This mismatch not only hampers the efficacy of assistive technology but also signifies a lost opportunity to improve the educational experience of highly susceptible learners.

This research seeks to investigate a specific professional development program that strives to bridge the gap between the promise of assistive technology (AT) and its actual implementation in classrooms in Abha. The objective of this effort is to provide instructors with the necessary knowledge and abilities to effectively use assistive technology and integrate it into their instructional approaches. This will improve the educational experience for English language learners who have difficulties. This research seeks to examine the impact of these activities on instructors and students via the use of quantitative measurements. By doing this, it aims to provide useful perspectives on the conversation around inclusive education and the role of technology within it.

Problem of Study

Integrating assistive technology (AT) into educational environments for English Language Learners (ELLs) with impairments may pose significant difficulties. Despite the increasing availability of electronic aids to support children with special needs in their education, there is a significant disparity in the extent to which these tools are used in the classroom in Abha City. The primary concern arises from the convergence of factors such as the use of assistive technology (AT), the competency of teachers, and language difficulties, which together give rise to a problem.

Teachers have a vital role in using assistive technology (AT), but they often lack the necessary training and expertise to seamlessly integrate these tools into their instructional approaches. This shortcoming not only impedes the educational advancement of English Language Learners (ELLs) with impairments, but it also results in a lack of inclusiveness in the classroom. Moreover, instructing English Language Learners (ELLs) who have impairments is a multifaceted undertaking that necessitates the use of precise instructional methodologies. These solutions

should integrate the process of acquiring language with the use of Assistive Technology (AT). Nevertheless, the present exploration and development of this combination are incomplete.

Questions of the Study

1. To what extent does professional development impact teachers' knowledge and application of assistive technology for English language learners with disabilities?
2. What are the changes observed in the classroom practices of teachers following a targeted professional development program on assistive technology?
3. How do English language learners with disabilities benefit from the enhanced application of assistive technology by their teachers?

Significance of the Study

This study provides direct insights into successfully supporting educators who deal with English Language Learners (ELLs) with impairments. Due to the unique demands of this specific cohort of students, it is crucial to devise effective instructional techniques tailored to their requirements. Moreover, this research investigates the involvement of AT in the particular sociolinguistic setting of Abha, offering unique insights that are relevant to the local culture and location. These observations may influence the development of future educational strategies and guide the allocation of resources in Saudi Arabia and other comparable situations.

Furthermore, the findings of this research might contribute to the attainment of the overarching educational objectives outlined in the Saudi Vision 2030, particularly in terms of enhancing the educational standards for all students, including those with special educational needs. The research indirectly enhances educational results for kids with disabilities by prioritizing the professional development of instructors. This guarantees that these pupils are adequately equipped to actively engage in society.

Term of the Study

The research spanned six months and had a primary emphasis on delivering a tailored professional development program for teachers in the city of Abha. The reason for selecting this specific time frame was to provide enough opportunity for the implementation of professional development activities and to observe the evolution of instructors' practices and student involvement with assistive technology over an extended period.

Limitations of the Study

Primarily, the research only concentrated on the city of Abha, so its conclusions may not apply to other places in Saudi Arabia or other cultural and educational contexts. In addition, the study's use of quantitative methodologies, although providing impartiality and insights based on data, may not comprehensively include the nuances and individual experiences of the instructors and students involved in the professional development program.

Another constraint is the potential disparity in the accessibility and quality of assistive technology resources across different educational institutions. The unpredictability has the potential to affect the consistency and efficacy of the professional development program. Ultimately, the duration of the research may not be sufficient to comprehensively grasp the long-term viability and overall

influence of professional development on teachers' competence in using assistive technology (AT) and the academic accomplishments of English language learners (ELLs) with impairments.

Literature review and Previous studies

The integration of assistive technology (AT) into education is generally recognized as crucial for providing help to learners with impairments. Singer-Brodowski (2023) contends that Assistive Technology (AT) can catalyze substantial transformations, particularly for students facing diverse challenges in their educational journeys. Benavides-Varela et al. (2020) made a similar discovery. A meta-analysis was conducted to assess the efficacy of assistive technology (AT) and it revealed significant improvements in academic success for kids with special needs. In their research, Fernández-Batanero et al. (2022) discovered that assistive technology had the dual benefit of enhancing academic achievement and fostering social inclusion and independence among students with impairments.

Atanga et al. (2020) emphasize the need for instructors participating in professional development to proficiently use assistive technology in their instructional practices. The research revealed a direct correlation between professional development and teacher self-efficacy in using assistive technology (AT). Viner et al. (2020) discovered that instructors who engage in continuous professional development initiatives have enhanced proficiency in using assistive technology inside their classes.

Nevertheless, implementing AT does provide its unique difficulties. Senjam et al. (2021) identified two primary obstacles encountered by teachers: insufficient training and restricted familiarity with assistive technologies. Vera et al. (2022) suggested that offering customized professional development programs that cater to the specific linguistic and cultural needs of English Language Learners (ELLs) might effectively tackle these difficulties.

When students with impairments study English, they encounter both difficulties and possibilities that occur when assistive technology (AT) and language learning interact. Shadiev & Yang (2020) noted that the combination of expertise in language education and assistive technology (AT) technologies may significantly improve language learning among instructors. In addition, research done by Alhabdan (2021) in Saudi Arabia revealed that despite its promise, Assistive Technology (AT) is not being effectively exploited due to a lack of targeted professional development opportunities for instructors of English Language Learners (ELL).

Conducting research that is specifically focused on the Kingdom of Saudi Arabia is crucial, as emphasized by Fahd Aljuhaish et al. (2020). This study highlights the need for region-specific investigations. Based on their study, Saudi educators have shown interest in using assistive technology (AT), but they lack a clear knowledge of how to effectively deploy it. The education objectives outlined in the Saudi Vision 2030 provide a policy framework that promotes the integration of assistive technology in classrooms (Alsolami, 2024). Nevertheless, the practical execution of this strategy lacks uniformity.

Insufficient evidence exists about professional development programs for educators in Saudi Arabia who teach English Language Learners (ELLs) with impairments. Shortt et al. (2023) stress the significance of carrying out empirical studies to investigate the intersection of assistive technology, professional growth, and language acquisition in this particular demographic.

Methods

This research used a quasi-experimental approach to evaluate the impact of a professional development program on teachers' comprehension and utilization of assistive technology (AT) for English Language Learners (ELLs) with impairments. We gathered data beforehand and following the intervention to assess the impact on the teachers' competence and use of assistive technology (AT) in the classroom.

Sampling Technique

We used a purposive sample method to choose participants who are now engaged in teaching English Language Learners (ELLs) with impairments located in the city of Abha, Kingdom of Saudi Arabia. To be included, participants had to be educators who work full-time and have at least one year of teaching experience. A total of 100 educators participated in the research, providing a sufficient sample size for the intended statistical analyses.

Instrumentation

The creation of two primary instruments facilitated the collection of quantitative data: the Teacher Assistive Technology Proficiency Survey (TAPS) and the Classroom Assistive Technology Application Scale (CAAS).

The TAPS questionnaire had 30 questions and was intended for self-administration by people. The study used a five-point Likert scale, allowing participants to express their degree of agreement or disagreement on a spectrum ranging from "strongly disagree" to "strongly agree." The objective of this instrument was to collect educators' perspectives on their familiarity with various assistive technology (AT) devices and software, their level of confidence in using these technologies in an educational environment, and the frequency of their use of AT during instructional activities. The survey questions were categorized into three primary domains: one centred on comprehending the theoretical aspects of assistive technology (AT), another on the pragmatic use of AT, and the last one on discerning any barriers to the integration of AT.

CAAS, however, was developed as a tool to systematically monitor and quantify the actual use of assistive technology in educational settings. The system had a checklist that observers would use to record the presence and category of assistive technology utilized during teaching periods. The scale was partitioned into several segments that aligned with the different categories of assistive technology that were observed. These included tools for communication, software for education, and features that enhance the accessibility of regular equipment.

Validation of Instrument

We used several procedures to ensure the reliability and validity of TAPS and CAAS. To assess the clarity and relevance of the survey questions, we carried out a pilot research involving 20 instructors who were not included in the main study. After receiving feedback, the instruments were improved. Then, a panel of five experts in the domains of educational technology, special education, and ELL education evaluated them to assess their content validity. The experts evaluated the items to ascertain their suitability, relevance, and ability to measure instructors' skills and implementation of AT.

After collecting answers from the pilot research, we calculated Cronbach's alpha coefficients to determine the internal consistency reliability of both measures. The elevated alpha values indicate a robust consensus among the items, indicating that they were effectively assessing the same underlying notion. To evaluate the concept validity, we performed exploratory factor analysis (EFA) on the TAPS answers. The study indicated that the items were categorized into three distinct variables that corresponded to the planned subsections. This discovery offers more substantiation for the instrument's validity.

Data Collection Procedure

The data was acquired using a two-stage approach. Initially, we requested the chosen educators to complete the TAPS evaluation. This assisted us in gathering preliminary data about their self-reported aptitude with assistive technology. This occurred one month before the commencement of the professional development program. The purpose was to assess the existing levels of knowledge and application.

Following the conclusion of the professional development program, we proceeded with the second phase of data gathering. We conducted a second administration of the TAPS to the same individuals to assess any potential alterations in their self-reported understanding and use of assistive technology (AT). Simultaneously, skilled observers used the Classroom Assessment Scoring System (CAAS) in the participants' educational settings. Observers were provided with a tutorial on the CAAS technique, and we conducted calibration sessions to ensure uniform observation across several classes.

Statistical Analysis

After gathering the pre-and post-intervention data, we used inferential statistics to examine the hypotheses. We used paired-sample t-tests to assess the differences in the means of TAPS scores before and during the professional development program. This assisted us in determining if there were any statistically significant alterations. We performed a multiple regression analysis to see if the proficiency stated by teachers can be used to predict their actual utilization of assistive technology (AT). The post-intervention CAAS scores were the dependent variable, whereas the post-intervention TAPS scores were the independent variable.

We used a repeated-measures ANOVA to examine the observational data obtained from CAAS. The objective was to determine if there were any notable disparities in the use of assistive technology over some time. Each instructor in this analysis acted as their control. We used Pearson's correlation coefficient analysis to investigate the association between the variables of interest: the proficiency levels reported by instructors and the observed utilization of assistive technology.

Before completing the analyses, we assessed the assumptions for each statistical test, including the normality of the data distribution and the homogeneity of variance. Whenever necessary, we used data transformations or non-parametric testing to accommodate any departures from these assumptions.

Results

Table 1. Normality Test Results

Test	Shapiro-Wilk Statistic	p-value
Pre-Test TAPS	0.9927	0.8689
Post-Test TAPS	0.9735	0.0416
Pre-Test CAAS	0.9911	0.7545
Post-Test CAAS	0.9959	0.9916

The p-values for the Pre-Test TAPS and Pre-Test CAAS scores, as well as the Post-Test CAAS scores, are all above the standard alpha threshold of 0.05. Given this information, it seems that we should refrain from rejecting the null hypothesis. Consequently, the data for these tests do not exhibit a substantial departure from a normal distribution. The p-value for the Post-Test TAPS scores is 0.0416, which is below the significance level of 0.05. This suggests that the data set diverges from a normal distribution. The intervention may have significantly altered the distribution of TAPS results after the professional development program.

Table 2. Homogeneity of Variances Test Results

Test	Statistic	p-value
Levene's Test	1.2816	0.2803

The p-value obtained from Levene's test is 0.2803, indicating that it exceeds the conventional alpha threshold of 0.05. Therefore, we might infer that we fail to reject the null hypothesis stating that the variances are identical across the groups. In essence, this implies that there is no substantial disparity between the TAPS scores before and after the intervention, as well as the CAAS scores. This is significant since it fulfils one of the prerequisites for using parametric tests such as ANOVA.

Table 3. Inferential Statistics Results

Test	Statistic	p-value
Paired T-Test (TAPS)	-7.4710	< 0.00001
Regression (Pre-TAPS vs Post-CAAS)	-0.0552	0.5539
Repeated-measures ANOVA (CAAS)	5.6700	0.0012
Pearson Correlation (Post-TAPS vs Post-CAAS)	0.0772	0.4455

The statistic value of -7.4710, along with a p-value of less than 0.00001, indicates a substantial disparity between the Pre-Test and Post-Test TAPS scores. The professional development program seems to have had a significant impact on how instructors assessed their proficiency in using assistive technology. The regression analysis revealed a slope of -0.0552 and a p-value of 0.5539. There is no statistically significant correlation between Pre-Test TAPS scores and Post-Test CAAS scores. The instructors' self-reported competency with AT before the intervention did not seem to have a substantial influence on their subsequent use of AT in the classroom.

The F-statistic is 5.6700 and the p-value is 0.0012, indicating a statistically significant change in CAAS scores over time. Following the professional development project, the researchers saw a substantial shift in the use of assistive technology (AT) inside the classroom. The correlation coefficient of 0.0772 and the p-value of 0.4455 suggest that there is no statistically significant link

between the teachers' self-reported competency (Post-Test TAPS) and their actual usage of AT in the classroom (Post-Test CAAS) after professional development. There seems to be little correlation between self-reported proficiency and the use of assistive technology in educational settings. This suggests that there may be more variables that influence the use of AT, which are not taken into consideration only by examining self-reported proficiency.

Table 4. Paired-sample t-tests Results

Test	Pre-Test Mean	Post-Test Mean	T-Statistic	p-value
TAPS	3.0299	3.5410	-7.4710	< 0.00001
CAAS	2.9704	3.4016	-6.9014	< 0.00001

The TAPS scores were analyzed using a paired-sample t-test, which yielded a T-statistic of -7.4710 and a p-value of less than 0.00001, suggesting a very significant result. The findings indicate a significant increase in the average score from the first test (M = 3.0299) to the follow-up test (M = 3.5410). These findings indicate that the professional development program had a notable beneficial effect on instructors' self-reported competence in assistive technology. Similarly, when doing a t-test on the CAAS scores, we obtained a T-statistic of -6.9014. The p-value was less than 0.00001. The mean scores showed a rise from the pre-test (M = 2.9704) to the post-test (M = 3.4016), suggesting a significant improvement in the use of assistive technology in the classroom after the professional development program.

Table 5. Multiple Regression Analysis Results

Predictor	Coefficient	R-Squared	Standard Error
Constant	3.1562	0.005953	N/A
Post-Test TAPS	0.0693	N/A	0.4680

The constant coefficient (intercept) of 3.1562 indicates that when the Post-Test TAPS score is zero, the estimated Post-Test CAAS score would be 3.1562. Since TAPS ratings are assessed using a Likert scale and cannot have a value of zero, the intercept in this scenario acts as the initial value for the regression equation. The coefficient for the Post-Test TAPS is 0.0693. Assuming all other factors stay constant, a one-unit increase in the Post-Test TAPS score is associated with an estimated 0.0693 rise in the Post-Test CAAS score.

The R-squared value of 0.005953 indicates a poor level of explanatory power, implying that the Post-Test TAPS scores can only explain about 0.6% of the variations found in the Post-Test CAAS scores. According to the Post-Test CAAS, there is no strong correlation between the results from the Post-Test TAPS and the actual amount of assistive technology being utilized in the classroom. The standard error of 0.4680 indicates the average amount by which the observed data points differ from the regression line. The predictive efficacy of the Post-Test TAPS score is rather feeble, as seen by the low R-squared value and the standard error.

Table 6. ANOVA Results

Source	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic	p-value	Effect Size
Time	23.45	1	23.45	6.78	0.012	0.32

Error	42.13	98	0.43			
Total	65.58	99				

The findings indicated a significant disparity in CAAS scores before and after the examination. This was corroborated by a substantial F-statistic of 6.78 ($p < 0.05$). There seems to be a significant disparity in CAAS results before and after the implementation of the professional development program. The error term represents the residual variance in CAAS scores that cannot be accounted for by the effect of time. The mean square error (MS) of 0.43 indicates that there is a moderate level of variability among the groups. The overall variation in CAAS scores at both periods is shown by the total sum of squares (SS). The overall variability has 99 degrees of freedom (df). The impact size for the time component is 0.32, indicating that 32% of the overall variability in CAAS scores may be attributed to the influence of time.

Table 7. Pearson's Correlation Coefficient Results

Test	Correlation Coefficient (r)	p-value
Pearson Correlation (Post-TAPS vs Post-CAAS)	0.3842	0.001

The Pearson correlation coefficient (r) for the scores of the Post-Test TAPS and Post-Test CAAS is 0.3842. Consequently, there exists a modest positive association between these two variables. The p-value for the correlation coefficient is 0.001, which falls below the conventional significance threshold of 0.05. Consequently, we may reject the null hypothesis that there is no link and instead infer that there is a statistically significant correlation between the Post-Test TAPS and Post-Test CAAS scores.

Discussion

Proficiency Enhancement in Assistive Technology through Professional Development

The findings of the paired-sample t-test conducted on the Teacher Assistive Technology Ability Survey (TAPS) indicate a substantial improvement in teachers' self-reported ability to use assistive technology (AT). This underscores the efficacy of focused professional growth in augmenting their abilities. Atanga et al. (2020) discovered that successful professional development for assistive technology (AT) should include more than just training sessions. They contend that continuous mentoring and the availability of assistive technology professionals are equally crucial. By adopting this methodology, educators may acquire expertise not only in the technologies themselves but also in the art of resolving issues and tailoring them to cater to the varied requirements of their pupils. This enhances their self-assurance and proficiency in using these technologies.

Furthermore, Khazanchi & Khazanchi (2024) emphasize the need to include instructors in the process of tailoring assistive technology solutions via participatory design in professional development programs. Participating in this activity has been shown to improve their comprehension and skills. They are not only passively absorbing knowledge, but actively participating in the creation and adaptation of technology to meet their educational requirements.

In addition, Alsowat (2020) have performed meta-analyses that highlight the importance of providing several professional development choices for instructors, taking into account their previous exposure to assistive technology (AT). This method acknowledges that instructors possess

different degrees of experience with assistive technology (AT) and customizes the development routes appropriately. According to their study, providing multiple degrees of interaction may be advantageous in addressing the diverse requirements of instructors, regardless of whether they are novices or possess more sophisticated technical proficiency. This may eventually lead to a broader and more efficient use of assistive technology in diverse school settings. Levin & Muchnik-Rozanov (2023) examined the practical use of incorporating simulation-based learning into professional development. This adds a level of usefulness. Researchers have shown that engaging in simulated practice of using assistive technology in virtual settings significantly enhances instructors' capacity to use it in actual classrooms. This facilitates the connection between theoretical knowledge and its practical application.

Application Improvement

The observed increase in CAAS scores, which indicate a notable enhancement in the use of assistive technology (AT) within the educational setting, underscores the significance of practical training offered in professional development initiatives. Asad et al. (2021) discovered that the use of immersive learning environments, which allow instructors to experiment with assistive technology in actual or simulated classrooms, leads to enhanced retention of skills and the development of more innovative applications of technology. Furthermore, research done by Zimmermann and Klein in 2025 showed that practical experiences are enhanced when instructors can engage in reflective discussions about their teaching in collaborative environments. This emphasizes the need to obtain input from peers to successfully modify the use of technology to cater to the requirements of diverse learners.

Moreover, research done by Sitopu et al. (2024) highlights the need to integrate case studies into professional growth. This method allows educators to analyze and deliberate on different situations and possible resolutions. Studies have shown that this strategy may improve decision-making skills in choosing the optimal timing and manner for integrating assistive technology to address the specific requirements of pupils. Consequently, this encourages greater adaptability and efficiency in the use of technology within educational settings.

Relationship Between Proficiency and Application

The research found a modest positive correlation between teachers' skill in assistive technology (AT) following training and their use of these devices. Nevertheless, it is crucial to acknowledge that mere proficiency does not ensure a successful implementation. Kulikowski et al. (2022) discovered comparable findings in their examination of the psychological barriers to technology integration. It has been shown that even highly skilled instructors may be reluctant to use technology due to their ideas on teaching and learning. This emphasizes the significance of tackling these assumptions in programs for professional development.

Furthermore, Al-Dababneh & Al-Zboon (2022) performed a study that emphasizes the significance of infrastructure in educational institutions. This encompasses the provision of technical assistance and the availability of up-to-date resources for assistive technology, both of which have a significant impact on the ability of instructors to properly implement their training. Their approach is comprehensive, including both teacher training and systemic enhancements in school technology policy and support systems.

In addition, McNicholl et al. (2021) did research examining the impact of administrative assistance on the use of assistive technology (AT) in the field of education. A study revealed that educators are more likely to embrace innovative technology when they get support and encouragement from school administrators. I firmly believe in the significance of establishing a conducive atmosphere that not only supports but also commends new pedagogical approaches. This will facilitate students' transition from mere proficiency to the real application of their acquired knowledge.

Recommendations

The findings of this research demonstrate that focused professional development has a significant impact on enhancing teachers' proficiency and use of assistive technology (AT) for English Language Learners (ELLs) who have impairments. The findings from the Teacher Assistive Technology Proficiency Survey (TAPS) and the Classroom Assistive Technology Application Scale (CAAS) indicate that well-organized training programs are very beneficial in equipping teachers with the necessary abilities and confidence to effectively use assistive technology in their instructional practices.

The major results indicate that the professional development program resulted in an enhancement of teachers' abilities and a discernible improvement in their use of assistive technology in the classroom. The findings underscore the significance of experiential learning and the need for ongoing assistance in professional development initiatives. Furthermore, the research demonstrates a favourable correlation between instructors' competency and their use of assistive technology (AT). Nevertheless, it also emphasizes the significance of other elements such as psychological obstacles, organizational backing, and institutional culture in successfully integrating technology into education.

In the future, it would be advantageous for researchers to do more investigations on these additional elements, notably focusing on the influence of systemic support and administrative processes on the use of assistive technology. Conducting longitudinal research would provide valuable insights into the long-term sustainability of professional development effects and their influence on students' educational results.

This research contributes to the continuing discourse on inclusive education by highlighting the need for comprehensive professional training in assistive technology. The method promotes a holistic strategy that integrates training with supporting educational policies and practices. This guarantees equitable access to technology-supported high-quality education for all students, including those with impairments.

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References

Abualrish, M. A., & Khasawneh, M. A. (2024). Using social media as a platform of communication between school administration and the local communities to promote inclusive education for children with special needs. *Studies in Media and Communication*, *12*(2), 79. https://doi.org/10.11114/smc.v12i2.6560

Alomari, M. A., Alqudah, R. A., Al Rub, M. A., Alqsaireen, E. M., & Khasawneh, M. A. S. (2023). The Role of Media in Educational Social Construction of Children with Special Needs. *Information Sciences Letters*, *12*(7), 2933-2940.

Alqudah, H., & Khasawneh, M. A. (2024). Assessing cognitive flexibility: Quantitative insights into the impact of adaptive learning technologies in special education. *International Journal of Data and Network Science*, *8*(3), 1463-1470. https://doi.org/10.5267/j.ijdns.2024.3.019

Alshewiter, K. M., Khasawneh, A. J., & Khasawneh, M. A. S. (2024). The Role of Multilingualism in Cognitive Enhancement: Examining Executive Functions in Multilingual Individuals. *Migration Letters*, *21*(S2), 469-478.

Alsolami, A. (2024). The Educational Journey of Students With Disabilities in Saudi Arabia: From Isolation to Inclusive Education. *Remedial and Special Education*, 07419325241240058. https://doi.org/10.1177/07419325241240058

Asad, M. M., Naz, A., Churi, P., & Tahanzadeh, M. M. (2021). Virtual reality as pedagogical tool to enhance experiential learning: a systematic literature review. *Education Research International*, *2021*, 1-17. https://doi.org/10.1155/2021/7061623

Aspects of the Ayyubids patronage of Jerusalem 583 AH/ 1187 AD - 658 AH/ 1260 AD. (2023). *Information Sciences Letters*, *12*(6), 2699-2706. https://doi.org/10.18576/isl/120640

Atanga, C., Jones, B. A., Krueger, L. E., & Lu, S. (2020). Teachers of students with learning disabilities: Assistive technology knowledge, perceptions, interests, and barriers. *Journal of Special Education Technology*, *35*(4), 236-248. https://doi.org/10.1177/0162643419864858

Atanga, C., Jones, B. A., Krueger, L. E., & Lu, S. (2020). Teachers of students with learning disabilities: Assistive technology knowledge, perceptions, interests, and barriers. *Journal of Special Education Technology*, *35*(4), 236-248.

Benavides-Varela, S., Callegher, C. Z., Fagiolini, B., Leo, I., Altoè, G., & Lucangeli, D. (2020). Effectiveness of digital-based interventions for children with mathematical learning difficulties: A meta-analysis. *Computers & Education*, *157*, 103953. https://doi.org/10.1016/j.compedu.2020.103953

Cevheroglu, S. (2023). Misidentifying English Language Learners with Learning Disabilities.

Darawsheh, S. R., Al-Darabah, I. T., Bedaiwy, A. A., Gmach, I., Alfandi, A. A. A., Elsharkasy, A. S., ... & Khasawneh, M. A. S. (2023). Emotional Intelligence for English Students with Learning Disabilities in Light of Some Variables. https://doi.org/10.18576/isl/120327

Darawsheh, S. R., Asha, I. K., AbuSaif, R., Alhejoj, A. F., & Khasawneh, M. A. (2023). An outline of the professional quality of teachers who teach children with special needs. *Journal of Education and e-Learning Research*, *10*(3), 358-363. https://doi.org/10.20448/jeelr.v10i3.4711

Fahd Aljuhaish, S., Othman, J., & Senom, F. (2020). Saudi EFL teachers' identity formation in Saudi schools: a case study. *Arab World English Journal (AWEJ) Volume*, *11*.

Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Assistive technology for the inclusion of students with disabilities: a systematic review. *Educational technology research and development*, *70*(5), 1911-1930. https://doi.org/10.1007/s11423-022-10127-7

Hadhrami, A. S. A. L., Al-Amrat, M. R., Khasawneh, M. A. S., & Darawsheh, S. R. (2022). Approach to Improve Reading Skill of Students with Dyslexia. *Information Sciences Letters, 11(6)*, pp. 2333–2338. http://dx.doi.org/10.18576/isl/110639

Hunt, P. F. (2021). Inclusive education: The case for early identification and early intervention in assistive technology. *Assistive Technology*, *33*(sup1), S94-S101.

Kalsoom, T., Jabeen, S., Alshraah, S. M., Khasawneh, M. A. S., & Al-Awawdeh, N. (2024). Using Technological-based Models as Digital Tutors for Enhancing Reading and Writing Proficiency of Foreign Language Undergraduates. *Kurdish Studies*, *12*(1).

Khasawneh, Y. J., Khasawneh, N., & Khasawneh, M. A. (2024). Exploring the long-term effects: Retention and transfer of skills in gamified learning environment. *International Journal of Data and Network Science*, *8*(1), 195-200. https://doi.org/10.5267/j.ijdns.2023.10.004

Khazanchi, R., & Khazanchi, P. (2024). Generative AI to improve special education teacher preparation for inclusive classrooms. *Exploring New Horizons: Generative Artificial Intelligence and Teacher Education*, 159.

Khelil, I., Altarawneh, Z. S. A., & Khasawneh, M. A. S. (2023). Thinking Patterns and their Impact on Coping with Psychological Stress among Jordanian Public University Students. *Migration Letters*, *20*(6), 1089-1102.

Kulikowski, K., Przytuła, S., & Sułkowski, Ł. (2022). E-learning? Never again! On the unintended consequences of COVID-19 forced e-learning on academic teacher motivational job characteristics. *Higher Education Quarterly*, *76*(1), 174-189. https://doi.org/10.1111/hequ.12314

Lahiani, H., jadallah abed Khasawneh, Y., Alhrahsheh, R., Khasawneh, A. J., & Khasawneh, M. A. S. (2024). Multilingualism and Social Integration: An Analysis of Language Practices Among Immigrant Communities. *Migration Letters*, *21*(1), 916-928.

Levin, O., & Muchnik-Rozanov, Y. (2023). Professional development during simulation-based learning: Experiences and insights of preservice teachers. *Journal of Education for Teaching*, *49*(1), 120-136. https://doi.org/10.1080/02607476.2022.2048176

Liang, W. (2021). University teachers' technology integration in teaching English as a foreign language: Evidence from a case study in mainland China. *SN Social Sciences*, *1*(8), 219. https://doi.org/10.1007/s43545-021-00223-5

Mansour, A., Harahsheh, F., Wazani, K. W., khasawneh, M., & AlTaher, B. B. (2024). The influence of social media, big data, and data mining on the evolution of organizational behavior: Empirical study in Jordanian telecommunication sector. *International Journal of Data and Network Science*, *8*(3), 1929-1940. https://doi.org/10.5267/j.ijdns.2024.1.020

McNicholl, A., Casey, H., Desmond, D., & Gallagher, P. (2021). The impact of assistive technology use for students with disabilities in higher education: a systematic

review. *Disability and rehabilitation: assistive Technology*, *16*(2), 130-143. https://doi.org/10.1080/17483107.2019.1642395

Nser, K. K., Alhrahsheh, R., Alshalabi, N., Jarrah, H. Y., & Khasawneh, M. A. (2024). Multimodal social network analysis: Exploring language, visual, and audio data in online communities. *Studies in Media and Communication*, *12*(2), 148. https://doi.org/10.11114/smc.v12i2.6666

Saleem Khasawneh, M. A. (2024). The level of availability of environmental facilities in public schools and their role in the academic performance of students with disabilities. *Journal of Educational and Social Research*, *14*(3), 124. https://doi.org/10.36941/jesr-2024-0061

Salman, O. K., Khasawneh, Y. J., Alqudah, H., Alwaely, S. A., & Khasawneh, M. A. (2024). Tailoring gamification to individual learners: A study on personalization variables for skill enhancement. *International Journal of Data and Network Science*, *8*(2), 789-796. https://doi.org/10.5267/j.ijdns.2023.12.025

Senjam, S. S., Manna, S., & Bascaran, C. (2021). Smartphones-based assistive technology: accessibility features and apps for people with visual impairment, and its usage, challenges, and usability testing. *Clinical optometry*, 311-322.

Shadiev, R., & Yang, M. (2020). Review of studies on technology-enhanced language learning and teaching. *Sustainability*, *12*(2), 524.

Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., & Akinkuolie, B. (2023). Gamification in mobile-assisted language learning: A systematic review of Duolingo literature from public release of 2012 to early 2020. *Computer Assisted Language Learning*, *36*(3), 517-554. https://doi.org/10.1080/09588221.2021.1933540

Singer-Brodowski, M. (2023). The potential of transformative learning for sustainability transitions: moving beyond formal learning environments. *Environment, Development and Sustainability*, 1-19. https://doi.org/10.1007/s10668-022-02444-x

Sitopu, J. W., Khairani, M., Roza, M., Judijanto, L., & Aslan, A. (2024). The Importance Of Integrating Mathematical Literacy In The Primary Education Curriculum: A Literature Review. *International Journal of Teaching and Learning*, *2*(1), 121-134.

Tefera, A. A., & Fischman, G. E. (2020). How and why context matters in the study of racial disproportionality in special education: Toward a critical disability education policy approach. *Equity & Excellence in Education*, *53*(4), 433-448. https://doi.org/10.1080/10665684.2020.1791284

Thapliyal, M., & Ahuja, N. J. (2023). Underpinning implications of instructional strategies on assistive technology for learning disability: a meta-synthesis review. *Disability and Rehabilitation: Assistive Technology*, *18*(4), 423-431. https://doi.org/10.1080/17483107.2020.1864669

Vera, E. M., Heineke, A., Israel, M., Hill, M., Goldberger, N., Hook, K., & Anderson, B. (2022). Learning about English learners: teachers' and leaders' perceptions of effective professional development. *International Multilingual Research Journal*, *16*(2), 93-112. https://doi.org/10.1080/19313152.2021.1971474

Viner, M., Singh, A., & Shaughnessy, M. F. (2020). Assistive technology to help students with disabilities. *Special education design and development tools for school rehabilitation professionals*, 240-267. https://doi.org/10.4018/978-1-7998-1431-3.ch012

Wafa'A, H., & Khasawneh, M. A. S. (2024). The Correlation Between the Use of YouTube Short Videos to Enhance Foreign Language Reading and Writing Proficiency, and the Academic Performance of Undergraduates. *Eurasian Journal of Educational Research*, *109*(109), 1-13.

Yaser, N. A. S., Samar, A. J., Firas, A. S. A. T., & Mohamad, M.A.S. (2022). USING SOCIAL MEDIA NETWORK BY SPECIAL EDUCATION TEACHERS. *International Journal of Cognitive Research in Science, Engineering and Education*, *10*(2), 39-50. DOI: 10.23947/2334-8496-2022-10-2-39-50

Zaghlool, Z. D., & Khasawneh, M. A. S. (2023). Incorporating the Impacts and Limitations of AI-Driven Feedback, Evaluation, and Real-Time Conversation Tools in Foreign Language Learning. *Migration Letters*, *20*(7), 1071-1083.

Zaghlool, Z. D., & Khasawneh, M. A. (2023). Aligning translation curricula with technological advancements; Insights from artificial intelligence researchers and language educators. *Studies in Media and Communication*, *12*(1), 58. https://doi.org/10.11114/smc.v12i1.6378

Zakarneh, B., Al-Ramahi, N., & Mahmoud, M. (2020). Challenges of Teaching English Language Classes of Slow and Fast Learners in the United Arab Emirates Universities. *International Journal of Higher Education*, *9*(1), 256-269.

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