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## **An Empirical Examination of Universities' Strategies for Supporting Students with Special Learning Disorder in Developing Countries: A Predictive Model Using Mixed-Methods Research**

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**Abstract:** Educational statistics have shown a growing number of students with special educational needs (SEN), such as learning disorders accepted into different university programs; empirical evidence indicates that they still face difficulties in adapting to the learning environment and education process. In contrast, little empirical research in developing countries has tested strategies that universities can adopt to support these students. Nevertheless, our preliminary study revealed that many Egyptian universities remain unprepared to deal with disabled students. This study has taken a further significant step in contributing to both theory and practice and helps address some gaps in the current body of literature through: (a) Providing a deeper understanding of students with SEN, explicitly learning disorder in developing countries. (b) Outlining some supportive strategies needed to be addressed by universities to meet the needs of these students before and during their course study. (c) Developing and validating a mathematical model predicting and examining the perceived effectiveness of these strategies. The current study used mixed methods research (MMR) as a methodological research paradigm for gathering, assessing, and mixing both qualitative and quantitative approaches to enhance the integrity of the research finding and comprehensively understand a research phenomenon. The developed questionnaire was pretested, and feedback from the pretest and the panel of experts was used to revise the survey instrument. The reliability of instruments was assessed and showed high using internal consistency (Cronbach's alpha > 0.8). Multiple regression analysis with its associated statistical inference tests was applied. Based on our findings, the study has made a number of important managerial and academic implications. These findings provide valuable guidance for researchers and practitioners, open areas for future research, and add empirical weight to research addressing developing countries.

**Keywords:** Differentiated teaching strategy, Mixed-methods research, Special educational needs, Special learning disorder, Virtual learning environment strategy

### **Introduction**

Educational statistics have shown that a growing number of students with special educational needs (SEN), such as learning disorders, are accepted into different university programs. Now most universities and higher-educational institutions in western countries are developing supportive strategies and plans addressing the needs of their students with disabilities to provide effective individualized learning environments that maximize academic and social development (e.g., Lenkeit et al., 2022; Annemarie & Cate, 2011; Dermody & Majekodunmi, 2011; Mauceri et al., 2011; Bossaert et al., 2012; López et al., 2013; Madaus et al., 2022; Atkins, et al., 2022). In this context, Lenkeit et al. (2022) stressed the importance of educators finding an integral approach to support.

However, empirical evidence indicates that students with Special Learning disorders rate are increasing and still face difficulties in adaptation to the learning environment and tend to achieve poorer outcomes in terms of final degree classification, despite having comparable qualifications to other students when entering the same university (e.g., Madaus et al., 2022; Brittle, 2020). Therefore, individualization in the learning process is

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necessary, and universities need to adopt academic and administrative strategies for these students and need to ensure that such strategies are implemented effectively. Given that the current literature suggests that the potential adaptive strategies required may quite differ for different disabilities, and students with SEN should not be discriminated against or substantially disadvantaged by higher-education institutions (e.g., Taylor et al., 2010; Ghergut, 2011; López et al., 2013). Therefore, there would seem to be some merit for more studies to empirically examine the perceived effectiveness of strategies regarding students with special educational needs at unstudied developing countries to enhance their learning outcomes. The current research is an attempt at this direction.

## **Research Problem, Objectives and Plan**

Although studies regarding strategies for students with SEN are increasing, related models offered in the academic literature concerning its applications in universities are mainly conceptual, and recommendations remain disproportionately less effective (e.g., Tarantino et al., 2022). In contrast, little empirical research has tested it from the perspective of these students.

On the other hand, little empirical research in developing countries has tested strategies universities can adopt to support these students. Contreras et al. (2022) indicated that few studies had examined this issue outside of the United States. Nevertheless, our preliminary study revealed that many Egyptian universities remain unprepared to deal with disabled students. Therefore, our research attempts to narrow this research gap in the current body of literature by identifying and examining the critical adaptation strategies for students with SEN, as well as suggesting recommendations to enhance their learning outcomes

In sum, the present investigation contributes to literature and practice through achieving the following objectives: (a) providing deeper understanding about students with SEN, specifically in developing countries, (b) outlining a number of adaptive strategies needed to be addressed by universities to meet the needs of these students before and during their course study, (c) developing and validating empirically a mathematical model predicating and examining the perceived effectiveness of these strategies.. With these objectives in view, the current paper has been organized as follows: the literature and relevant studies were reviewed and analyzed. Then hypotheses were formulated to be tested in the study. This was followed by an explanation of the procedures used to obtain data, measurement, and validation processes, as well as the testing of the hypotheses stated. Finally, based on our findings a series of conclusions with managerial implications and final thoughts that emphasize the great interest in the topic under analysis were presented; and then certain limitations and future lines of research with regard to this issue were highlighted.

## **Literature Review**

Relevant literature, which provided the conceptual foundation for this paper and past research, was extensively reviewed and integrated sequentially, including a wide range of recently published works, to develop the study hypotheses more effectively. For the current study purpose, the literature review is organized to address the following streams:

### **Theoretical Background and Related Works of SEN**

In current literature, students with SEN are defined as students with various (combinations of) difficulties in participating in education (Bossaert et al., 2012). More specifically, when they have more difficulty than the rest of their classmates in accessing specific learning in the curriculum that corresponds to their age or require special education and related services to achieve their fullest potential, and their disabilities range from speech and language impairments to mental retardation (López et al., 2013; Vassiliki et al., 2011).

Similarly, Nash and Norwich (2010) suggested that the term Enhancing the Effectiveness of Adaptive Strategies for Special Educational Needs Students: An Empirical Examination and Proposed Predictive Model SEN is used officially to refer to those students who require additional or different provision for their learning difficulties and disabilities, given that some researchers prefer using the terms “inclusive education” and “barriers to learning” instead.

### **Academic Advisory Strategy**

For students with SEN, the transition process from school to a full-time university course can potentially be more daunting. Ideally, students with a disability applying to university should declare their disability on their application form. This can assist the academic advisors' system in making appropriate adaptive strategies or plans before the teaching process starts. However, for a variety of reasons, not all students declare their disability on entry to the university (Taylor et al., 2010). Hence, academic advisors should conduct panel interviews with all students applying to the university and organize regular meetings with the parents of students who market as disabled or need a particular educational treatment to develop a plan for supporting them throughout their course.

### **Virtual Learning Environment Strategy**

Today, the virtual learning environment evolves in parallel with the rapid development of informatics technology and has been conceptualized and defined in multiple ways in literature as a distance learning environment that uses the Internet technology to interact with remote learners and deliver educational material electronically to support students and universities goals and enhance knowledge transfer (Ahmed, 2013; Cihak, 2011; López et al., 2013). From students with SEN perspectives, a virtual learning environment provides them a more flexible and convenient method of delivery of learning materials unrestricted by location and time, enhancing the acquisition of skills and providing an opportunity to engage in communication activities matched to their individual needs and abilities. The range of virtual learning environment tools includes tools that permit a course to be housed "online," with access by password to a repository of course instructions, readings, lecture recordings, and other resources linked by the internet. Also enable lecturers and students to initiate communication and to interact synchronously "live, in real-time", and asynchronously "ready when time permits" (see Small et al., 2012; Brown & Charlier, 2013; Hassanzadeh et al., 2012; Jonas & Burns, 2010; Owens & Price, 2010; Chen & Huang, 2011; Wu et al., 2010; Chen & Tseng, 2012; Özyurt et al., 2013).

### **Differentiated Teaching Strategy**

In a differentiated teaching strategy, higher-educational lecturers accept that each student learns in a particular way and has significant needs, so they adjust the curriculum, promote different learning styles, and try to engage all students in the learning process. Under these circumstances, lecturers should take into consideration the learning profile of their students, which is based on their interests, their performance, and the particular way they learn when designing each teaching hour as the needs vary from lesson to lesson, even for the same students (Vassiliki et al., 2011). These arguments are consonant with the results of other works (e.g., Mavrou, 2011), which support the effectiveness of differentiated teaching in helping students with SEN cope with learning difficulties. As concluded by López et al. (2013) curriculum adaptations are contextualized educational strategies to facilitate the teaching and learning process in students with special educational needs, making modifications to the regular curriculum.

### **Developing Hypotheses and Research Model**

The hypotheses formulation process was based not only on a comprehensive review of the specialized literature but also on the data collected from a series of qualitative studies in the preliminary stages of the current research. In the light of this process, three hypotheses were formulated as follows:

- H<sub>1</sub>:** Implementing an academic advisory strategy for students with Special Learning Disorder positively influences their perceived effectiveness in the transition process.
- H<sub>2</sub>:** *Implementing a virtual learning environment strategy* for students with Special Learning Disorder *needs* influences their perceived effectiveness in the transition process.
- H<sub>3</sub>:** *Implementing a differentiated teaching strategy* for students with Special Learning Disorder influences their perceived effectiveness in the transition process.

The proposed research model in figure 1 presented integrated the three predictor constructs derived from previously validated studies and our preliminary study to be examined simultaneously, as symbolically shown in the multiple regression equation (*EQI*), to predict the perceived effectiveness of the transition process (the

criterion variable:  $Y_{PTP}$ ), served as regress, given known values from a set of predictor variables, used as regressors

$$Y_{PTP} = a + b_{ADS} ADS + b_{VLE} VLE + b_{DTS} DTS \quad (1)$$

Where:

ADS= Academic advisory strategy

VLE= Virtual learning environment strategy

DTS= Differentiated teaching strategy

$Y_{PTP}$ = Perceived effectiveness of transition process

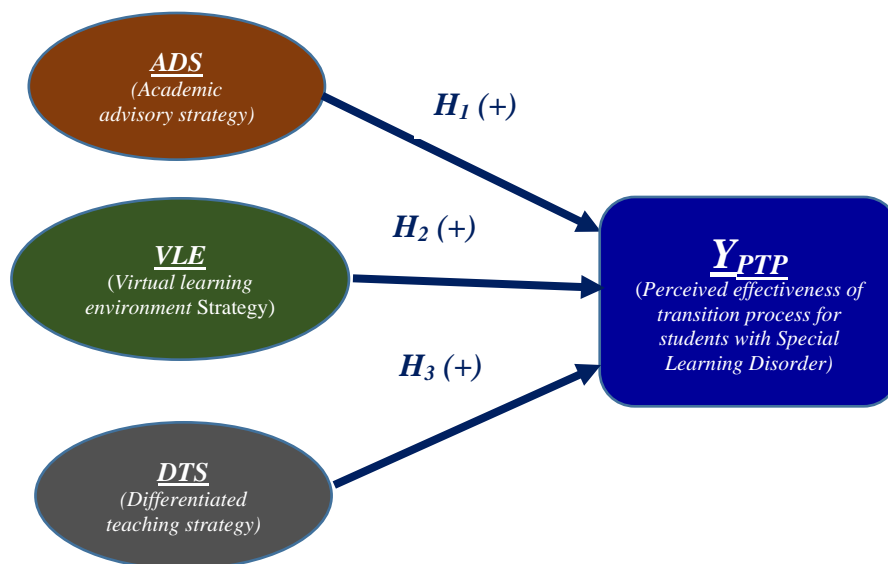


Figure 1. Research model

## Research Methodology

This empirical study employed a mixed-methods research design, combining elements of quantitative and qualitative methodologies to enhance the integrity of the research finding and broaden the research possible (e.g., McLaughlin et al., 2016; Taguchi, 2018). The multivariate statistical technique, structural equation modeling (SEM), was applied to simultaneously examine all the latent variables (constructs) and the multiple indicators variables that constitute our model. This method was viewed to be the most appropriate for analyzing the structural relationships between latent constructs, which are multidimensional and measured variables (e.g., Kim et al., 2020; Kursunoglu & Onder, 2019; Lee, 2018; Clark, 2019; Qureshi & Kang, 2015; Yuen et al., 2019). Before conducting this analysis, statistical tests for multicollinearity, normality, and linearity were carried out to ensure the data used in the empirical data met the requirements of multiple regression analysis. Thus, the research process involved multi-stage procedures as follows.

### Qualitative Study

Preliminary qualitative study data were collected using the focus group, complemented by a series of in-depth face-to-face interviews. The aim was to get a deeper understanding of the phenomenon under consideration, support hypotheses development, and establish the criteria and relationship constructs relevant to our empirical study. Issues arising from this stage were used as a basis for the subsequent quantitative study.

### Quantitative Study

The quantitative research design in the form of a questionnaire survey involved a cross-sectional methodology. The study was conducted over three months to collect empirical data. The target population was undergraduate students with Special Learning disorders at the Egyptian universities that adopted the credit hours' system, as this system allows the student to study according to his own pace and abilities.

Unlike the fixed format teaching many Egyptian universities follow, the credit hour system enables students to select several courses from a well-planned academic program. Each student is assigned an academic advisor who guides him in planning his study program, monitors his progress, and helps solve any problems that may be encountered. To increase generalizations, the participants were spread across four universities in Egypt during the academic year. To gain as many representative samples as possible, participants were drawn from various courses.

### **Instrument, Validity, and Reliability**

Before the survey, this current research took steps to ensure reliability and validity. The scales used for the measurement process were developed after reviewing the related literature, and an initial set of items was adapted from well-established validated survey items of previous works to operationalize each construct of interest in this study.

Measurement items were modified and translated into Arabic to fit the current study context better. In line with prior works (e.g., Javed & Wu, 2020; Francionia et al., 2018) research variables were measured by multiple items using a 5-point multi-item Likert scale. The questionnaire was pre-tested among 30 academicians and practitioners. A pilot test followed this step. Based on pre-test and pilot test feedback, modifications had been made to improve readability and appropriateness. The revised questionnaire was again pre-tested, the final version was found to work well, and the instrument has confirmed content validity.

The reliability and validity of the constructs were evaluated. Cronbach's alpha coefficient test was used to assess the internal consistency reliability. The reliability analysis results of the present paper showed that the value of Cronbach's alpha of every construct is more significant than 0.8 (ranging from 0.85 to 0.96, indicating adequate convergence of internal consistency and constructs were proved to be sufficiently reliable for analysis. Also, exploratory factor analysis was used to evaluate the construct validity, demonstrating the acceptable standard.

### **Research Design**

The research design for this study involved a cross-sectional survey methodology. Among a total of 120 questionnaires that were randomly distributed, 56 valid responses were received and used in data analysis after removing invalid answers, yielding a usable response rate of 46.66 percent for the overall survey. The demographic profile of the sample was mainly male (73.21 percent), and the median age was approximately 19 years. Despite the relatively low response rate, which is thought to be expected in social sciences surveys, the fact that the respondents were as representative of the population as possible led to their contribution being regarded as providing information applicable to the larger population.

### **Data Analysis, Testing the Research Model and Results**

The empirical data collected by the survey was analyzed and tested using statistical software packages (SPSS). Due to the presence of more than one predictor in the study, multiple regression models were built to examine the joint and independent influence of the predictors on the criterion variable and model relationships. The associated statistical inference tests of multiple regression analysis (F test and t-test on b) were applied to prove the significance of the variables included in the research model. To avoid violating the basic assumptions underlying the method of least squares used by the classical linear regression, a P-P plot for assessing the assumption of normality was conducted.

### **Multicollinearity Test**

Before conducting the multiple regression analysis, tests concerning multicollinearity among the independent variables included in the research model, normality, and linearity tests were carried out to ensure the data used in the current study met the requirements of multi regression analysis. The values revealed no severe multicollinearity problem among the regressors, which suggested that predictors were tolerated in the criterion variable.

### The Results of Hypotheses Testing

The results of the multiple regression analysis in table 1 led to accepting the hypotheses mentioned earlier, while the statistical significance test supported this acceptance.

Table 1 Reg. summary outputs and ANOVA

Coefficients a	Symbols	Values
Model Summary a		
Multiple correlation coefficient	Multiple R	0.93757282428057
Coefficient of multiple determination	R <sup>2</sup>	0.87904280082944
Adjusted R Square	Adjusted R <sup>2</sup>	0.87206450087724
Standard Error	SEE	0.80845071464999
Observations	N	56
ANOVA b		
Regression	SS <sub>reg</sub>	246.995329840202
Residual	SS <sub>res</sub>	33.9868130169404
Total	SS <sub>total</sub>	533.1223776
F-test overall model	F	80.982142857143*
Degrees of freedom	df1, df2	3, 52

a Criterion variable: Y<sub>PTP</sub>      b. Predictors: (constant), ADS, VLE, and DTS

\*p<0.00000000 levels of significant

A solid significant, meaningful correlation is found between the perceived effectiveness of the transition process and the above-mentioned independent variables (Multiple correlation coefficient: *Multiple R*=0.93757282428057). The *F statistic value* (F=125.96804477556 at p < 0.000000 level) is statistically significant, indicating that the model's results could hardly have occurred by chance. Thus, the goodness-of-fit of the model is satisfactory. The coefficient of determination and *multiple R-square* showed that these predictor factors explained the significant proportion (87.90 %) of the variability observed among perceived effectiveness of the transition process (R<sup>2</sup>=0.87904280082944), which reinforces our confidence in the hypotheses testing results and provides support for the association mentioned above.

Furthermore, the *adjusted R<sup>2</sup>* of the model, which is a more conservative estimate of variance by considering error variance, is 0.872064500877299. This reinforces our confidence that the overall explanatory power of the research model is considered high and quite capable of explaining the observed variance among the sample. For easy comparison and assessing the relative impact of each predictor variable on the criterion variable, standardized beta coefficients and *t-test* values were summarized in table 2.

Table 2. Regression coefficients of the research model and significance tests

Constructs <sup>a</sup>	Non-standardized		standardized Beta		t-test	
	Regression Coefficients	Value	Coefficients β	Value	Value	Sig.
ADS	B <sub>ADS</sub>	0.6359791	β <sub>DEC</sub>	0.364	5.354563	0.00000000*
VLE	B <sub>VLE</sub>	0.5152989	β <sub>VLE</sub>	0.241	3.710234	0.00050476
DTS	B <sub>DTS</sub>	0.0431290	β <sub>DTS</sub>	0.132	0.349093	0.72842859
Intercept	a	0.8291771				
df	n-k-1	52				

a Criterion variable: INT      \*p<0.00 levels of significant

More specifically, academic advisor system (*Beta<sub>ADS</sub>* =0.364, p < 0.000000) had the highest effect on smoothing the transition process, followed by the virtual learning environment (*Beta<sub>VLE</sub>* =0.241 p < 0.00050476). Using the values of the regression coefficients presented in table 2, the future perceived effectiveness of transition process can be predicted, in this study, by the following final equation (EQ2):

$$Y_{PTP} = 0.83 + 0.63 \text{ ADS} + 0.51 \text{ VLE} + 0.04 \text{ DTS} \quad (2)$$

## Normal Probability Analysis

A P-P plot of regression standardized residual for assessing the assumption of normality was conducted, to see if the error term  $\epsilon$  is normally distributed (e.g., Schmidt, 2018). The plot, in figure 2, showed that the data met the assumptions of normality, quantile pairs fell nearly on a straight line and quite close to the 45-degree line. Thus, it can be concluded that the data used in this research are approximately normally distributed, and the fitted model is appropriate

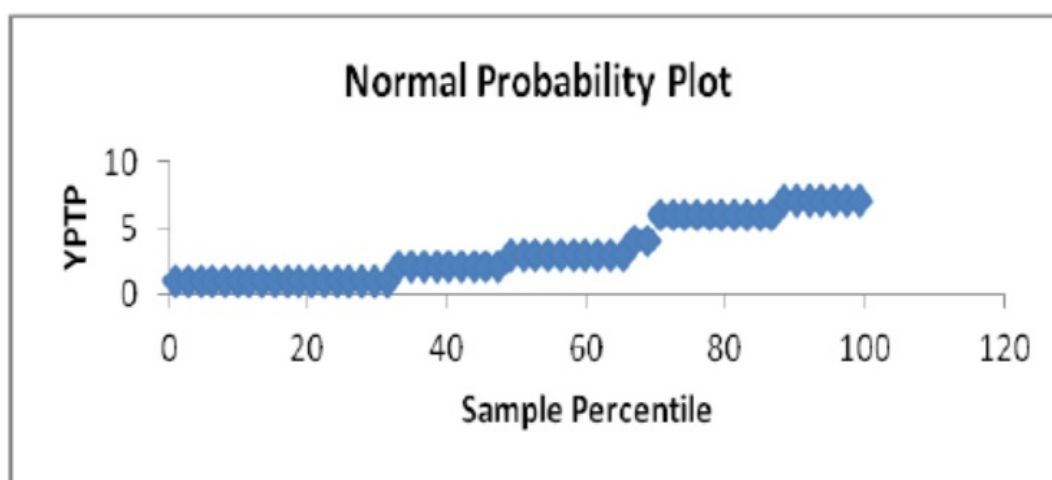


Figure 2: Normal P-P Plot of regression standardized residual

## Discussion, Findings, and Implications

### General Discussion

This paper contributed to both theory and practice concerning special education. The current study may help to fill some gaps in the existing body of literature, specifically in developing countries, and offers several practical implementations and theoretical contributions.

### Practical Implications

From a practical perspective, the results presented in this paper emphasized some strategies that need to be addressed by universities concerning meeting the needs of students with Special Learning Disorder both before and when they start their course of study. It is hoped that the topics covered in this paper may be helpful to higher-education institutions in developing countries to make them aware of the potential adjustment transition strategies that may be required for such students. As it was found that the academic advisor system (had the highest effect on smoothing the transition process, so if the university advisors use their knowledge of students' strengths, interests, and talents to engage them in at least one or two classes, the students may prefer, benefits may ensue.

### Theoretical Implications

The current study is considered among the first to empirically examine strategies for Supporting Students with Special Learning disorders in Developing Countries in Arab literature. The results successfully supported the proposed model's validity and the suitability of the mixed-methods research design used in this study. The current study provides empirical evidence and validation for the existing specialized literature concerning disabled students. Also, the findings of the empirical study provide support for the research model and the hypotheses regarding the directional linkage among its variables. The high overall explanatory power of our model indicated that this model is capable of explaining the high proportion of variance observed in the perceived effectiveness of the transition process.

## Limitation and Further Research

Despite the practical implications and theoretical contributions, the current study has some limitations that indicate directions for future research. Since the survey is cross-sectional, future research could use a longitudinal field study method to examine the hypothesized relationships. Second, the research model was validated using empirical data gathered from Egypt. Therefore, the findings may be much contextualized toward the culture in this developing country.

Apart from the above, we must point out that although the majority of the hypothesized relationships were validated and significant, and the proposed model yielded a relatively high level of coefficient of multiple determination (multiple R-square), there is still a need to find additional variables, to compensate for this limitation and improve the model's ability to predict. However, there are other opportunities to build on this study in future research. Suggested areas include re-examining the proposed model in other countries with different cultures, and making comparisons, to see whether it can be applied. Also, it would be valuable if future research could use other theoretical bases or different methodologies and samples to derive more predictions.

## Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

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## References

- Agaliotis, I. & Kalyva, E. (2011), A survey of Greek general and special education teachers' perceptions regarding the role of the special needs coordinator: Implications for educational policy on inclusion and teacher education. *Teaching and Teacher Education*, 27(3), 543-551.
- Ahmed, T. (2013). Toward successful e-learning implementation in developing countries: A proposed model for predicting and enhancing higher education instructors' participation. *International Journal of Academic Research in Business and Social Sciences*, 3(1), 422-435.
- Annemarie, P., & Cate, S. (2011). Embraced or embargoed: Special ability and needs issues in the Arabian gulf. *Procedia Social and Behavioral Sciences*, 15, 1248-1256.
- Atkins, R., Dugan, M., Jakubowski, T., & Perron, T. (2022). Service learning: Nursing students' civic engagement with diverse populations of children with special needs. *Journal of Pediatric Nursing*, 65, 1-9.
- Bossaert, G., Colpin, H., Pijl, S., & Petry, K. (2012). Loneliness among students with special educational needs in mainstream seventh grade. *Research in Developmental Disabilities*, 33(6), 1888-1897.
- Brittle, B. (2020). Coping strategies and burnout in staff working with students with special educational needs and disabilities. *Teaching and Teacher Education*, 87(3-4), 102937.
- Brown, K., & Charlier, S. (2013). An integrative model of e-learning use: Leveraging theory to understand and increase usage. *Human Resource Management Review*, 23(1), 37-49.
- Chen, H., & Huang, L. (2011). Learning achievement of knowledge management adaptively in web-based interactive learning systems for junior high school in Taiwan. *New Educational Review*, 25, 207-217.
- Chen, H., & Tseng, H. (2012). Factors that influence acceptance of web-based e-learning systems for the in service education of junior high school teachers in Taiwan. *Evaluation and Program Planning*, 35(3), 398-406.
- Cihak, D. (2011). Comparing pictorial and video modelling activity schedules during transitions for students



- with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 5(1), 433-441.
- Contreras, D., Brante, M., Espinoza, S. and Zuñiga, I. (2020). The effect of the integration of students with special educational needs: Evidence from Chile. *International Journal of Educational Development*, 74, 102163.
- Dermody, K., & Majekodunmi, N. (2011). Online databases and the research experience for university students with print disabilities. *Library Hi Tech*, 29(1), 149-160.
- Ghergut, A. (2011). Education of children with special needs in Romania; attitudes and experiences. *Procedia - Social and Behavioral Sciences*, 12, 426-435.
- Hassanzadeh, A., Kanaani, F., & Elahi, S. (2012). A model for measuring e-learning systems success in universities. *Expert Systems with Applications*, 39, 10959-10966.
- Jonas, D. & Burns, B. (2010). The Transition to blended e-learning. Changing the focus of educational delivery in children's pain management. *Nurse Education in Practice*, 10(1), 1-7.
- Lenkeit, J., Hartmann, A., Ehlert, A., Knigge, M. & Sporer, N. (2022). Effects of special educational needs and socioeconomic status on academic achievement. Separate or confounded? *International Journal of Educational Research*, 113, 101957
- López, A., Fórtiz, M., Almendros, M., & Segura, M. (2013), Mobile learning technology based on ios devices to support students with special education needs. *Computers & Education*, 61, 77-90.
- Madaus, J., Reis, S., Gelbar, N., Delgado, J., & Cascio, A. (2022). Perceptions of factors that facilitate and impede learning among twice-exceptional college students with autism spectrum disorder. *Neurobiology of Learning and Memory*, 193, 107627.
- Mauceri, M., Di Marco, G., & Licciardello, O. (2012). Action learning's effects on special educators' attitudes towards students. *Procedia - Social and Behavioral Sciences*, 46, 5698 - 5702.
- Mavrou, K. (2011). Changing the state of mind of postgraduate students about technology, disability and inclusive education: Theory or practice? *Journal of Assistive Technologies*, 5(3), 131 - 139.
- Nash, T., & Norwich, B. (2010). The initial training of teachers to teach children with special educational needs: A national survey of English post graduate certificate of education programs. *Teaching and Teacher Education*, 26(7), 1471-1480.
- Owens, J., & Price, L. (2010). Is e-learning replacing the traditional lecture? *Education & Training*, 52, 128-139.
- Özyurt, O., Özyurt, H. & Baki, A. (2013). Design and development of an innovative individualized adaptive and intelligent e-learning system for teaching-learning of probability unit: Details of UZWEBMAT. *Expert Systems with Applications*, 40, 2914-2940.
- Small, F., Dowell, D., Simmons, P. (2012). Teacher communication preferred over peer interaction: Student satisfaction with different tools in a virtual learning environment. *Journal of International Education in Business*, 5(2), 114-128.
- Tarantino, G., Makopoulou, K., & Neville, R. (2022). Inclusion of children with special educational needs and disabilities in physical education: A systematic review and meta-analysis of teachers' attitudes. *Educational Research Review*, 36(2), 100456.
- Taylor, M., Baskett, M., & Wren, C. (2010). Managing the transition to university for disabled students. *Education & Training*, 52 (2), 165-175.
- Vassiliki, G., Maritab, P. and Elenib, A. (2011). The efficacy of teaching differentiation on children with Special Educational Needs (SEN) through Literature. *Procedia - Social and Behavioral Sciences*, 29, 67 - 74.
- Wu, J., Tennyson, R., & Hsia, T. (2010), A study of student satisfaction in a blended e-learning system environment, *Computer & Education*, 55, 155-164.

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