

**‘Specialization in ICTs and Special Education: Psychopedagogy of Integration’
Postgraduate Program
DEMOCRITUS UNIVERSITY OF THRACE Department of Greek Philology
in collaboration with
NCSR DEMOKRITOS Informatics and Telecommunications Institute**

**THE ATTITUDES OF SECONDARY SCHOOL TEACHERS TOWARDS THE
USE OF ICT FOR SUPPORTING STUDENTS WITH DYSLEXIA**

ZEPOU GEORGIA

POSTGRADUATE
THESIS

SUPERVISORY COMMITTEE

1. Ρίζος Σπυρίδων

Συνεργάτης Ερευνητής Ι.Π.Τ. Ε.Κ.Ε.Φ.Ε. “Δημόκριτος”

2. Δρίγκας Αθανάσιος

Διευθυντής Ερευνών και Ερευνητής Α’ Βαθμίδας Ι.Π.Τ. Ε.Κ.Ε.Φ.Ε. “Δημόκριτος”

3. Σταθοπούλου Αγαθή

Συνεργάτιδα ερευνήτρια Ι.Π.Τ. Ε.Κ.Ε.Φ.Ε. “ Δημόκριτος ”

ATHENS
2019

Abstract

This study investigated the attitudes of Secondary Education teachers in the use of Information and Communication Technologies (ICT) to support students with dyslexia. For the purposes of the survey, data from 45 teachers were collected through the use of a questionnaire. The results of the survey showed that the teachers' overall attitude towards the use of ICTs to the support of dyslexic students was relatively positive. Furthermore, variables such as the utility and ease of use of ICTs, the self-confidence and the training of teachers in the use of ICTs, as well as the image and satisfaction of teachers from the use of ICTs to support students with dyslexia, were all statistically significant for interpreting the overall attitude of teachers. Finally, regarding the importance of the demographic characteristics of teachers in shaping their overall attitude toward the use of ICTs to support students with dyslexia, none of the factors such as gender, age, educational experience, computer availability at the home of teachers or in the classroom and empirical or certified computer expertise did not have statistically significant influence. These results confirm to a large extent the results of corresponding studies of international literature, which were carried out at an earlier time.

REFERENCES

- Αγγελοπούλου, Δ. (2011). Παιδαγωγική αξιοποίηση των νέων τεχνολογιών και εκπαιδευτικά λογισμικά για μαθητές με ή χωρίς ειδικές εκπαιδευτικές ανάγκες. Στο Ε. Παπάνης, Π. Γιαβρίμης, Βίκυ, Α. (Επιμ.), *Έρευνα και Εκπαιδευτική Πράξη στην Ειδική Αγωγή* (σ. 187-214). Αθήνα: Σιδέρης.
- Agarwal, J. and Malhotra, N. (2005). An Integrated Model of Attitude and Affect. *Journal of Business Research*, 58(4), 483-493.
- Aguilar, M. (2012). Aprendizaje y Tecnologías de Información y Comunicación: Hacia nuevos escenarios educativos. *Revista Latinoamericana de Ciencias Sociales*, 10(2), 801-811.
- Αθανασίου, (2007). *ΜΕΘΟΔΟΙ ΚΑΙ ΤΕΧΝΙΚΕΣ ΕΡΕΥΝΑΣ ΣΤΙΣ ΕΠΙΣΤΗΜΕΣ ΤΗΣ ΑΓΩΓΗΣ* ποσοτικές και ποιοτικές προσεγγίσεις. Ιωάννινα: ΕΦΥΡΑ.
- Ainscow, M. (2005). Developing Inclusive Education Systems: What are the Levers for Change? *Journal of Educational Change*, 6(2), 109-124.
- Ainscow, M. and César, M. (2006). Inclusive Education Ten years after Salamanca: Setting the Agenda. *European Journal of Psychology of Education*, 21, 231-238.
- Ajzen, I. and Fishbein, M. (1977). Attitude-behavior Relations: A Theoretical Analysis and Review of Empirical Research. *Psychological Bulletin*, 84(5), 888-918.
- Albirini, A. (2006). Teachers' Attitudes Toward Information and Communication Technologies: The case of Syrian EFL Teachers. *Computers and Education*, 47(4), 373-398.
- Al-Gahtani, S. and King, M. (1999). Attitudes, Satisfaction and Usage: Factors Contributing to each in the Acceptance of Information Technology. *Behavior and Information Technology*, 18(4), 277-297.
- Allport, G. (1935). Attitudes. In C. Murchison, (ed.) *Handbook of social psychology*, (798-844). Worcester, MA: Clark University Press.
- Al-Zaidiyeen, N., Mei, L. and Fook, F. (2010). Teachers' Attitudes and Levels of Technology Use in Classrooms: The case of Jordan schools. *International Education Studies*, 3(2), 200-211.
- Anderson-Inman, L. and Horney, M. (2007). Supported eText: Assistive Technology through Text Transformations. *Reading Research Quarterly*, 42(1), 153-160.
- Arvies, J., De Maeyer, S., Gijbels, D. & van Keulen, H. (2015). Students attitudes toward technology. *International Journal of Technology and Design Education*, 25(1), 43-65.

Retrieved February 22, 2019, from <https://link.springer.com/article/10.1007/s10798-014-9268-x>

Authority, S.Q. (2014). Use of ICT in National Units: Writing. Retrieved July 2, 2019 from <http://www.sqa.org.uk/sqa/68873.html>

Avramidis, E. and Norwich, B. (2002). Teachers' Attitudes Towards Integration/Inclusion: A Review of the Literature. *European Journal of Special Needs Education*, 17(2), 129-147.

Avsec, S. and Kocijancic, S. (2016). A Path model of Technology Intensive Inquiry-based Learning. *Educational Technology and Society*, 19(1), 308-320.

Ayers, A. (1969). Deficits in Sensory Integration in Educationally Handicapped Children. *Journal of Learning Disabilities*, 2(3), 160-168.

Bagozzi, R. (1994). *Principles of Marketing Research*. Oxford: Blackwell Business.

Batanero, J. M. (2014). Las TIC y la diversidad docente. Actitudes del profesorado de Educación Permanente. *EL HOY Y LA MANAN JUNTO A LAS TICS* (pp. 1-8). Córdoba: XVII Congreso Internacional EDUTEC.

Balanskat, A., Blamire, R. and Kefala, S. (2006). *A review of studies of ICT impact on schools in Europe*: European Schoolnet.

Bandura, A. (1976). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.

Baron, R. and Byrne, D. (1984). *Social Psychology Understanding Human Interaction*. Boston: Allyn & Bacon.

Beacham, N. (2002). Dyslexia-friendly Computer-based Learning Materials. In: L. Phipps, A. Sutherland and J. Seale, (Eds.), *Access All Areas: Disability, Technology and Learning*, (73-77). York: TechDis with the Association for Learning Technology.

Bell, S., McCallum, R. and Cox, E. (2003). Toward a Research-based Assessment of Dyslexia: Using Cognitive Measures to Identify Reading Disabilities. *Journal of Learning Disabilities*, 36(6), 505-516.

Bem, D. (1970). *Beliefs, Attitudes, and Human Affairs*. Belmont, CA: Brooks/Cole.

British Educational Research Association (BERA). (2011). *Ethical Guidelines for Educational Research*. Retrieved February 21, 2019, from <https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf?%20Retrieved%20Accessed%2003/04/1>

- Blustein, D. (2013). *The Psychology of Working: A New Perspective for Career Development, Counseling, and Public Policy*. New Jersey: Lawrence Erlbaum Associates, Publishers.
- Boles, S. (2011). Using Technology in the Classroom. *Science Scope*, 34(9), 39-43.
- Bohner, G. and Wanke, M. (2002). *Attitudes and Attitude Change*. Brighton: Psychology Press.
- Boyle, C., Scriven, B., Durning, S., and Downes, C. (2011). Facilitating the Learning of all Students: The 'Professional Positive' of Inclusive Practice in Australian Primary Schools. *Support for Learning*, 26(2), 72-78.
- Boyle, C. and Topping, K. (2012). *What Works in Inclusion?* U.K.: McGraw-Hill Education.
- Bozdogan, D. and Ozen, R. (2014). Use of ICT Technologies and Factors Affecting pre-service ELT teachers' Perceived ICT self-efficacy. *Turkish Online Journal of Educational Technology*, 13(2), 186-196.
- Bradshaw, L. and Mundia, L. (2006). Attitudes to and Concerns about Inclusive Education: Bruneian Inservice and Preservice Teachers. *International Journal of Special Education*, 21(1), 35-41.
- Cabero-Almenara, J. (2005). Las TIC y las Universidades: Retos, Posibilidades y Preocupaciones. *Revista de la Educación Superior*, 34(135), 77-100.
- Calder, B. and Ross, M. (1972). *Attitudes and Behavior*. New York: General Learning Press.
- Castañeda, L., Román, M^a. M. and Barlam, R. (2015). Virtual words and social and educational inclusion: case study at Secondary Education Institute Cal Gravat. *New Approaches in Educational Research*, 4(2), 98-105.
- Cavas, B., Cavas, P., Karaoglan, B. and Kisla, T. (2009). A Study on Science Teachers' Attitudes Toward Information and Communications Technologies in Education. *Online Submission*, 8(2), 116-185.
- Chase, C., Schmitt, R., Russell, G. and Tallal, P. (1984). A New Chemotherapeutic Investigation: Piracetam Effects on Dyslexia. *Annals of Dyslexia*, 34, 29-48.
- Cheung, W.M. and Huang, W. (2002). An investigation of commercial usage of the world wide web. A picture from Singapore. *International Journal of Information Management*, 22(5), 377-388.

- Christensen, R. and Knezek, G. (2002). *Technology, pedagogy, professional development and reading achievements. KIDS project findings for 2001-2002*. Denton TX: University of North Texas, Institute for the Integration of Technology into Teaching & Learning.
- Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education*. New York: Routledge.
- Corn, J., Tagsold, J. and Argueta, R. (2012). Students with Special Needs and 1:1 Computing: A Teacher's Perspective. *Journal of Research in Special Educational Needs*, 12(4), 217–223.
- Cox, M., Preston, C. and Cox, K. (1999). What Factors Support or Prevent Teachers from Using ICT in their Classrooms? In: *British Educational Research Association Annual Conference*, Brighton: University of Sussex. Retrieved February 11, 2019, from <http://www.leeds.ac.uk/educol/documents/00001304.htm>
- Daniels, J. (2002). Foreword. In E., Khvilon and M. Patru, eds., *Information and Communication Technology in Education: A Curriculum for Schools and Program for Teacher Development*. Paris: UNESCO.
- Davis, F. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319-339.
- Defleur, M. and Westie, F. (1963). Attitude as a Scientific Concept. *Social Forces*, 42(1), 17-31.
- Defur, S. (2002). Education Reform, High-stakes Assessment, and Students with Disabilities: One State's Approach. *Remedial and Special Education*, 23(4), 203-211.
- Detheridge, T. (1996). *Information Technology, Enabling Access: Effective Teaching and Learning for Pupils with Learning Difficulties*. London: David Fulton.
- Djamasbi, S., Fruhling, A. and Loiacono, E. (2009). The Influence of Affect, Attitude and Usefulness in the Acceptance of Telemedicine Systems. *Journal of Information Technology Theory And Application*, 10(1), 41-58.
- Drigas, A. and Ioannidou, R. (2013). Special Education and ICTs. *iJET*, 8(2), 41-47. Retrieved February 19, 2019, from <http://dx.doi.org/10.3991/ijet.v8i2.2514>
- Drigas, A., Ioannidou, R., Kokkalia, G. & Lytras, M. (2014). ICTs, Mobile Learning and Social Media to Enhance Learning for Attention Difficulties. *Journal of Universal Computer Science*, 20(10), 1499-1510.
- Drigas, A., Kokkalia, G., & Lytras, M. D. (2015). ICT and collaborative co-learning in preschool children who face memory difficulties. *Computers in Human Behavior*, 51, 645-651.

- Drigas, A., & Batziaka, E. (2016). Dyslexia and ICTs, assessment and early intervention in kindergarten. *11(02)*, 53-56.
- Drigas, A. & Theodorou, P. (2016). ICTs and Music in Special Learning Disabilities. *iJES*, 4(3). Retrieved February 2, 2019, from <https://online-journals.org/index.php/i-ies/article/view/6066>
- Duane, D. (1977). Perspectives of dyslexia: Diagnostic Implications. *Psychiatric Annals*, 7(9), 17-32.
- Eagly, A. and Chaiken, S. (1993). *The Psychology of Attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Eagly, A. and Chaiken, S. (1998). Attitude Structure and Function. In D. Gilbert, S. Fiske and G. Lindzey (Eds.), *The Handbook of Social Psychology* (269-322). New York: McGraw-Hill.
- Edyburn, D. (2000). Assistive Technology and Students with Mild Disabilities. *Focus on Exceptional Children*, 32(9), 1-11.
- Edyburn, D. (2006). Failure Is Not An Option: Collecting, Reviewing and Acting on Evidence for Using Technology to Enhance Academic Performance. *Learning and Leading with Technology*, 34(1), 20-23.
- Elbeheri, G., Mahfoudhi, A. and Everatt, J. (2006). Dyslexia in the Arab World. *Perspectives on Language and Literacy*, (9-12). Retrieved December 18, 2019, from ResearchGate database.
- Empirica (2006). *Benchmarking access and use of ICT in European schools 2006: Final report from Head Teacher and Classroom Teacher Surveys in 27 European countries*. Germany: European Commission.
- Engelbrecht, P., Savolainen, H., Nel, M. and Malinen, O. (2013). How Cultural Histories Shape South African and Finnish Teachers' Attitudes towards Inclusive Education: A Comparative Analysis. *European Journal of Special Needs Education*, 28(3), 305-318.
- Ευρωπαϊκός Οργανισμός για την Ειδική Αγωγή (2001). *Τεχνολογίες Πληροφοριών και Επικοινωνίας στην Ειδική Αγωγή*. Δανία: Middelfart.
- European Parliament, (2014). *General Data Protection Regulation*. Retrieved April 4, 2019, from <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2014-0212&language=EN>.
- Fazio, R. (1990). Multiple Processes by which Attitudes Guide Behavior: The MODE Model as an Integrative Framework. *Advances in Experimental Social Psychology*, 23, 75-109.

- Fernández, F. D., Hinolo, F. J. and Aznar, I. (2002). Las actitudes de los docentes hacia la formación en tecnologías de la información y comunicación (TIC) aplicadas a la educación. *Contextos Educativos*, 5(2002), 253-270.
- Fielding, L. (2007). *Annual Growth for All Students, Catch-Up Growth for Those Who Are Behind*. (eds). Kennewick, WA: The New Foundation Press, Inc.
- Fishbein, M. (1963). An Investigation of the Relationships between Beliefs about an Object and the Attitude toward that Object. *Human Relations*, 16, 233-240.
- Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior. An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Forgrave, K. (2002). Assistive Technology: Empowering Students with Learning Disabilities. *The Clearing House*, 75(3), 122-126.
- Galanouli, D., Murthy, C. & Gardner, J. (2004). Teachers perceptions of the effectiveness of ICT-competence training. *Computers and Education*, 43(1-2), 63-79.
- Granados, A. (2015). Las TIC en la Enseñanza de los Métodos Numéricos. *Sophia Educación*, 11(2), 143-154.
- Griesbach, G. (1993). *Dyslexia: Its history, Etiology and Treatment*. Retrieved December 12, 2019 from <https://eric.ed.gov/?id=ED358409>
- Golder, L. M. (2008). A study of Teacher Perceptions of Instructional Technology Integration in the Classroom. *Delta Pi Epsilon Journal*, 50(2), 63-76.
- Haddock, G. and Maio, G. (2004). *Contemporary Perspectives on the Psychology of Attitudes*. New York: Psychology Press.
- Harrison, A. and Rainer, R. (1996). A General Measure of User Computing Satisfaction. *Computers in Human Behavior*, 12(1), 79-92.
- Hass, R., Katz, L., Rizzo, N., Bailey, I. and Eisenstadt, D. (1991). Cross-racial Appraisal as related to Attitude Ambivalence and Cognitive Complexity. *Personality and Social Psychology Bulletin*, 1(7), 83-92.
- Hernández, R. (2005). IF NOT HERE, WHERE? UNDERSTANDING TEACHERS USE OF TECHNOLOGY IN SILICON VALLEY SCHOOLS. *Journal of Research on Technology in Education*, 38(1), 39-64.

- Hinolo, J. and Fernández, G. (2002). DISEÑO DE ESCALAS DE ACTITUDES PARA LA FORMACION DEL PROFESORADO EN TECNOLOGIAS COMUNICAR. *Revista Científica de Comunicación y Educación*, 19, 120-125. doi: <https://doi.org/10.3916/25492>
- Jimoyiannis, A. and Komis, V. (2007). Examining Teachers' Beliefs about ICT in Education: Implications of a Teacher Preparation Programme. *Teacher Development*, 11(2), 149-173.
- Johnson, B. and Christensen, L. (2010) *Educational Research: Quantitative, Qualitative and Mixed Approaches*. 4th edn. London: Sage.
- Jones, A. (2004). *A Review of the Research Literature on Barriers to the Uptake of ICT by Teachers*. British Educational Communications and Technology Agency. Retrieved May 20, 2019 from <http://www.becta.org.uk>.
- Kallio, M. and Metsarinne, M. (2017). How do Different Background Variables Predict Learning Outcomes? *International Journal of Technology and Design Education*, 27(1), 31-50.
- Kay, R. (1993). An exploration of theoretical and practical foundations for assessing attitudes toward computers: the Computer Attitude Measure (CAM). *Computers in Human Behavior*, 9(4), 371-386.
- Kellenberger, D. M. and Hendricks, S. (2000). Predicting teachers computer use for own needs, teaching and student learning. *Journal of Educational Computing Research*, 16(1), 53-64.
- Kooij, S. (2013). *Adult ADHD: Diagnostic Assessment and Treatment*. 3rd ed. London: Springer-Verlag, 83.
- Konur, O. (2006). Teaching disabled students in higher education. *Teaching in Higher Education*. 11(3), 351-363.
- Korte, W. and Husing, T. (2006). Benchmarking Access and Use of ICT in European Schools 2006: Results from Head Teacher and A Classroom Teacher Surveys in 27 European Countries. In: Méndez-Vilas, A., A. Solano Martin, J. Mesa González, J.A. Mesa González. (Eds.), *Current Developments in Technology-Assisted Education* (1652-1657). Badajoz: FORMATEX.
- Kozleski, E., Artiles, A., Fletcher, T. and Engelbrecht, P. (2009). Understanding the Dialectics of the Local and the Global in Education for all: A comparative Case Study. *International Critical Childhood Policy Studies*, 2(1), 15-29.
- Kraska, J. and Boyle, C. (2014). Attitudes of Preschool and Primary School Preservice Teachers towards Inclusive Education. *Asia-Pacific Journal of Teacher Education*, 42(3), 228-246.

- Krosnick, J. and Abelson, R. (1992). The Case for Measuring Attitude Strength in Surveys. In J. Tanur (Eds.), *Questions about survey questions* (177-203). New York: Russell Sage.
- Kumar, N., Rose, R. and D'Silva, J. (2008). Teachers' Readiness to Use Technology in the Classroom: An Empirical Study. *European Journal of Scientific Research*, 21(4), 603-616.
- Kulik, J.(1994). Meta-analytic Studies of Findings on Computer-based Instruction. In J. Baker and H. O'Neil (Eds.), *Technology Assessment in Education and Training*. Hillsdale, NJ: Lawrence Erlbaum.
- Lee, R. & Kemple, K. (2014). Preservice Teachers' Personality Traits and Engagement in Creative Activities as Predictors of Their Support for Children's Creativity. *Creativity Research Journal*, 26(1), 82-94. Retrieved February 26, 2019, from <https://www.tandfonline.com/doi/abs/10.1080/10400419.2014.873668>
- Lewin, C. (2000). Exploring the Effects of Talking Book Software in UK Primary Classrooms. *Journal of Research in Reading*, 23(2), 149-157.
- Light, D. (2009). *The Role of ICT in Enhancing Education in Developing Countries: Findings from an Evaluation of the Intel Teach Essentials Course in India, Turkey and Chile*. *Journal of Education for International Development*, 4(2), 1-10.
- Logan, G. (1997). Automaticity and Reading: Perspectives from the Instance Theory of Automatization. *Overcoming Learning Difficulties*, 13(2), 123-146.
- Lorusso, M., Cantiani, C. and Molteni, M. (2014). Age, Dyslexia Subtype and Comorbidity Modulate Rapid Auditory Processing in Developmental Dyslexia. *Frontiers in Human Neuroscience*, 8(313), 1-16.
- Lovell, M. and Phillips, L. (2009). Commercial Software Programs Approved for Teaching Reading and Writing in the Primary Grades. *Journal of Research on Technology in Education*, 42(2), 197-216.
- Lyon, G., Shaywitz, S. and Shaywitz, B. (2003). A Definition of Dyslexia. *Annals of Dyslexia*, 53, 1-14.
- Lucas, B. & Nordgen, L.F. (2015). People underestimate the value of persistence for creative performance. *Journal of Personality and Social Psychology*, 109(2), 232-243.
- Ma, W., Andersson, R. and Streithw, K. (2005). Examining User Acceptance of Computer Technology: An Empirical Study of Student Teachers. *Journal of Computer Assisted Learning*, 21(6), 387-395.

- McCormack, A., Gore, J. and Thomas, K. (2006). Early Career Teacher Professional Learning. *Asia-Pacific Journal of Teacher Education*, 34(1), 95-113.
- Messiou, K. (2017). Research in the Field of Inclusive Education: Time for a Rethink? *International Journal of Inclusive Education*, 21(2), 146-159.
- Mueller, J., Willoughby, T., Wood, E. and Ross, C. (2008). Identifying Discriminating Variables between Teachers who Fully Integrate Computers and Teachers with Limited Integration. *Computers and Education*, 51(4), 1523-1537.
- Mumtaz, S. (2000). Factors Affecting Teachers' Use of Information and Communications Technology: A Review of the Literature. *Journal of Information Technology for Teacher Education*, 9(3), 319-342.
- Mahajan, G. (2016). Attitude of Teachers towards the Use of Technology in Teaching. *International Journal of Education and Applied Social Sciences*, 7(2), 141-146.
- Maldonado, N. and Morgan, H. (2010). Technology in the Classroom: Using Handheld Wireless Technologies in School: Advantageous or Disadvantageous? *Childhood Education*, 87(2), 139-142.
- Malinen, O., Savolainen, H., Engelbrecht, P., Xu, J., Nel, M., Nel, N., and Tlale, D. (2013). Exploring Teacher Self-efficacy for Inclusive Practices in Three Diverse Countries. *Teaching and Teacher Education*, 33, 34-44.
- Marshall, A. (2018). A Broader Legal Definition of Dyslexia. [Web log message]. Retrieved February 10, 2019, from <https://blog.dyslexia.com/broader-definition-dyslexia/>
- McKeown, S. (2000). *Dyslexia and ICT: Building on Success*. Coventry: Becta.
- Miller-Shaul, S. (2005). The Characteristics of Young and Adult Dyslexics Readers on Reading and Reading Related Cognitive Tasks as Compared to Normal Readers. *Dyslexia*, 11(2), 132-151.
- Mooij, T. (2007). Design of educational and ICT conditions to integrate differences in learning: Contextual learning theory and a first transformation step in early education. *Computers in Human Behavior* 23(3), 1499—1530. Retrieved February 20, 2019, from <http://dx.doi.org/10.1016/j.chb.2005.07.004>
- Moats, L. (1999). *Teaching Reading is Rocket Science*. Washington, DC: American Federation of Teachers.

- Mumtaz, S. (2000). Factors Affecting Teachers' Use of Information and Communications Technology: A review of the Literature. *Journal of Information Technology for Teacher Education*, 9(3), 319-342.
- Nicolson, R., Fawcett, A. and Nicolson, M. (2000). Valuation of A Computer-Based Reading Intervention in Infant and Junior Schools. *Journal of Research in Reading*, 23(2), 194-209.
- Niederhauser, D.S. and Staddart, I. (2001). Teachers instructional perspectives and use of educational software. *Teaching and Teacher Education*, 17(1), 15-31.
- O'Brien, B., Mansfield, J. and Legge, G. (2005). The Effect of Print Size on Reading Speed in Dyslexia. *Journal of Research in Reading*, 28(3), 332-349.
- Olagboyega, K. (2008). *The Effects of Dyslexia on Language Acquisition and Development*. Akita City, Japan: Akita International University.
- Olson, R. (2004). *Dyslexia and computers*. Retrieved February 18, 2019, from <http://www.sprakaloss.se/olsondyslexiandcompeng.htm>
- Osborne, J. and Hennessy, S. (2003). *Literature review in science education and the role of ICT: Promise, problems and future directions*. London: Futurelab.
- Oskamp, S. and Schultz, P. (2005). *Sociology, Attitudes and Opinions*. New Jersey: Lawrence Erlbaum.
- Pacansky-Brock, M. (2013). Best Practices for Teaching with emerging Technologies. *British Journal of music Education*, 30(3), 421-424. doi: <https://doi.org/10.4324/9780203095966>
- Παπαναστασίου, Ε. & Παπαναστασίου, Κ. (2016). *ΜΕΘΟΔΟΛΟΓΙΑ ΕΠΙΣΤΗΜΟΝΙΚΗΣ ΕΡΕΥΝΑΣ*. Λευκωσία: Ελεύθερη Έκδοση.
- Pavlou, V. and Vryonides, M. (2009). Understanding Factors that influence Teachers' Acceptance of Technology and Actual Computer Use for Teaching: The case of Greece. *Mediterranean Journal of Educational Studies*, 14(2), 437-444.
- Pelgrum, W. and Law, N. (2003). *ICT in Education around the World: Trends, Problems and Prospects*. Paris: UNESCO - International Institute for Educational Planning.
- Peralta, E. and Costat, F. A. (2007). Teachers acceptance and confidence regarding the use of ICT. *Sísifo-Educational Sciences Journal*, 3, 77-86. Retrieved February 12, 2019, from <http://sisifo.fpce.ul.pt>.

- Politi, E., Papasakellariou, K., Afentaki, M., Kapetanou, M. & Laskari, C. K. (2017). *ICTs in Assessment of Special Learning Difficulties*. Retrieved February 25, 2019, from <file:///C:/Users/User/Downloads/ICTsinAssessmentofSpecialLearningDifficulties.pdf>
- Prieto, V., Quinones, I., Ramirez, G. and Fuentes, Z. (2011). Impacto de las Tecnologías de la Información y las Comunicaciones en la Educación y Nuevos Paradigmas del Enfoque Educativo. *Educación Médica Superior*, 25(1), 95-102.
- Prensky, M. (2013). Our Brains Extended. *Educational Leadership*, 70(6), pp. 22-27.
- Pressley, M. (2002). Effective Beginning Reading Instruction. *Journal of Literacy Research*, 34(2), 165-188.
- Pyle, R., Bates, M., Greif, J. and Furlong, M. (2005). School Readiness Needs of Latino Preschoolers: A Focus on Parents' Comfort with Home-School Collaboration. *The California School Psychologist*, 10(1), 105-116.
- Rahman, F., Mokhtar, F., Alias, N. and Saleh, R. (2012). Multimedia Elements as Instructions for Dyslexic Children. *International Journal of Education and Information Technologies*, 6(2), 193-200.
- Ράπτης, Α., & Ράπτη, Α. (2014). *ΜΑΘΗΣΗ ΚΑΙ ΔΙΔΑΣΚΑΛΙΑ ΣΤΗΝ ΕΠΟΧΗ ΤΗΣ ΠΛΗΡΟΦΟΡΙΑΣ*. Αθήνα: Ιδιωτική έκδοση.
- Ray, R. (2006). Addressing gender differences in computer ability, attitudes and use: The laptop effect. *Journal of Educational Computing Research*, 34(2), 187-211.
- Raz, S., Lauterbach, M., Hopkins, T., Glogowski, B. and Porter, C. (1995). A Female Advantage in Cognitive Recovery from Early Cerebral Insult. *Developmental Psychology*, 31(6), 958-966.
- Richardson, J. (2009). Providing ICT Skills to Teacher Trainers in Cambodia: Summary of Project Outputs and Achievements. *Journal of Education for International Development*, 4(2), 1-12.
- Robson, C. (2007). *Η έρευνα του Πραγματικού Κόσμου, ένα μέσον για κοινωνικούς επιστήμονες και επαγγελματίες ερευνητές*. Αθήνα: Εκδόσεις Gutenberg.
- Rohaani, E., Taconis R. and Jochems, W. (2013). Analysing Teacher Knowledge for Technology Education in Primary Schools. *International Journal of Technology and Design Education*, 22(3), 271-280.
- Rooms, M. (2000). Information and Communication Technology and Dyslexia. In Townend, J. and Turner, M., *Dyslexia in Practice: A Guide for Teachers*. New York: Kluwer Academic Plenum Publishers.

- Rosario, C., Moreno, E., Labra, P. and Joaquin. (2014). TIC e Inclusión en aulas de Educación Secundaria de la Comunidad de Madrid: análisis de las prácticas docentes en el modelo 1a1 Profesorado. *Revista de Currículum y Formación de Profesorado*, 18(3), 81-97.
- Rosenberg, M. (1956). Cognitive Structure and Attitudinal Affect. *The Journal of Abnormal and Social Psychology*, 53(3), 367-372.
- Rosenberg, M. and Hovland, C. (1960). Cognitive, Affective and Behavioral Components of Attitudes. In: M. Rosenberg and C. Hovland, (Eds.), *Attitude Organization and Change: An Analysis of Consistency among Attitude Components*. New Haven: Yale University Press.
- Saunders M., Lewis P. and Thornihill A. (2006). *Research Methods for Business Students* (4nd ed.). Pearson Prentice Hall: Upper Saddle River.
- Savolainen, H., Engelbrecht, P., Nel, M. and Malinen, O. (2012). Understanding Teachers' Attitudes and Self-efficacy in Inclusive Education: Implications for Pre-service and In-service Teacher Education. *European Journal of Special Needs Education*, 27(1), 51-68.
- Schiler, J. (2003). Working with ICT: Perceptions of Australian Principals. *Journal of Educational Administration*, 41(3), 171-185.
- Schiffman, L. and Kanuk, L. (2004). *Consumer Behavior* (8th ed.) Upper Saddle River, NY: Pearson Education.
- Shannon, A. (2006). Dyslexia: Causes, Symptoms, Definition. *Journal of Reading, Writing and Learning Disabilities International*, 2(3), 217-223.
- Shapka, J.D. & Ferrari, M (2003). Computer-related attitudes and actions of teacher's candidates. *Computer in Human Behavior*, 19(3), 319-334.
- Spooner, F. (1992). *Behavioral Studies for Marketing and Business*. Leckhampton, UK: Stanley Thornes.
- Starcic, A.I., Niskala M. & Colloquium (2010). Vocational students with severe learning difficulties learning on the Internet. *British Journal of Educational Technology*, 41(6), 155-159. Retrieved February 20, 2019, from <http://dx.doi.org/10.1111/j.1467-8535.2010.01128.x>
- Starr, L. (2003). *How Teachers View Technology*. Retrieved February 20, 2019, from http://www.educationworld.com/a_tech/tech/tech180.shtml
- Stevens, S. (1946). On the Theory of Scales of Measurement. *Science*, 103(2684), 677-680.

- Stewart, I., McKee, W. and Porteous, K. (2011). *Towards a Personalized Mesh: the Implementation of Low Overhead, Multipath Learning*. Ανακοίνωση στο ALT-C Conference Proceedings, UK. Retrieved February 5, 2019, from <http://repository.alt.ac.uk/2182/1/rlt7815.pdf>
- Suárez, N. and Custodio, J. (2014). Evolución de las Tecnologías de Información y Comunicación en el Proceso de Enseñanza-aprendizaje. *Revista Vínculos*, 11(1), 209-220.
- Suhr, K., Hernadez, D., Grimes, D. and Warschauer, M. (2010). *Laptops and Fourth-Grade Literacy: Assisting the Jump over the Fourth-Grade Slump*. *Journal of Technology, Learning and Assessment*, 9(5), 1-46.
- Τάση, Ο. (2014). Οι στάσεις των εκπαιδευτικών με τις Τεχνολογίες της Πληροφορίας και Επικοινωνιών στο σχολείο, Έρκυνα Επιθεώρηση Εκπαιδευτικών Επιστημονικών Θεμάτων, 1, 200-215.
- Templer, E., Deutsch, G., Poldrack, R., Miller, S., Tallal, P., Merzenich, M. & Gabrieli, J. (2003). Neural deficits in children with dyslexia ameliorated by behavioral remediation: Evidence from functional MRI. *Neuroscience/Psychology*, 100(5), 2860-2865. Retrieved March 10, 2019, from <http://www.pnas.org/cgi/content/full/100/5/2860/otherarticles>
- Teo, T., Lee, C. B. and Chai, C. S. (2008). Understanding pre-service teachers computer attitudes: Applying and extending the Technology Acceptance Model (TAM). *Journal of Computer Assisted Learning*, 24(2), pp.128-143.
- Τζιμογιάννης, Α. (2010). Απόψεις εκπαιδευτικών για την εφαρμογή των ΤΠΕ στην εκπαίδευση. *Πρακτικά Εργασιών 7^{ου} Πανελληνίου Συνεδρίου με Διεθνή Συμμετοχή «Οι ΤΠΕ στην Εκπαίδευση»*, (σελ. 633-640). Κόρινθος: Πανεπιστήμιο Πελοποννήσου.
- Thompson, M., Zanna, M. and Griffin, D. (1995). Let's not be Indifferent about (attitudinal) Ambivalence. In R. Petty and J. Krosnick (Eds.), *Attitude Strength: Antecedents and Consequences* (361-386). Mahwah, NJ: Lawrence Erlbaum.
- Thomson, M. (2007). *Using ICT to Support Dyslexia in the Secondary School*. Wellgreen, Great Britain: Dyslexia Scotland.
- Thurstone, L. (1931). The Measurement of Attitudes. *Journal of Abnormal and Social Psychology*, 26(3), 249-269.
- Tomorrow.org, (2011). *How Today's Educators are Advancing a New Vision for Teaching and Learning*. Retrieved March 10, 2019, from https://tomorrow.org/speakup/pdfs/SU10_3EofEducation_Educators.pdf

- Torgesen, J. and Barker, T. (1995). Computers as Aids in the Prevention and Remediation of Reading Disabilities. *Learning Disabilities Quarterly*, 18, 76-88.
- Trochim, W. (2006a). *Deduction and Induction*. Web Center for Social Research Methods. Retrieved April 1, 2019, from <http://www.socialresearchmethods.net/kb/dedind.htm>.
- Trudell, B., Dowd, A., Piper, B. and Bloch, C. (2012). *Early Grade Literacy in African Classrooms: Lessons Learned and Future Directions*. Association for the Development of Education in Africa. Retrieved February 3, 2019, from http://www.adeanet.org/triennale-2012/sites/default/files/2018-07/1.5.04_document_sub_theme_1.pdf
- UNESCO, (1999). *World Communication and Information Report*. Retrieved March 9, 2019, from <https://unesdoc.unesco.org/ark:/48223/pf0000119077>
- UNESCO, (1994). *Salamanca Statement and Framework for Action for Special Needs Education*. Statement. World Conference on Special Needs Education: Access and Quality, Salamanca, Spain. Retrieved March 9, 2019, from http://www.unesco.org/education/pdf/SALAMA_E.PDF
- UNESCO, (2002). *Open and Distance Learning Trends, Policy and Strategy Considerations*. Retrieved March 9, 2019, from <https://unesdoc.unesco.org/ark:/48223/pf0000128463>
- UNESCO, (2008). *ICT Competency Standards for Teachers: Competency Standards Modules*. Paris. Retrieved March 9, 2019, from <https://unesdoc.unesco.org/ark:/48223/pf0000156207>
- UNESCO, (2009). *Policy Guidelines on Inclusion in Education*. Retrieved March 9, 2019, from <http://unesdoc.unesco.org/images/0017/001778/177849e.pdf>
- Vaillant, D. (2011). Preparing Teachers for Inclusive Education in Latin America. *Prospects*, 41(3), 385-398.
- Van Braak, J. (2001). Factors influencing the use of computer mediated communication by teachers' secondary schools. *Computers and Education*, 36(1), 41-57.
- Van den Berg, H., Manstead, A., Van der Pligt, J. and Wigboldus, D. (2006). The Impact of Affective and Cognitive Focus on Attitude Formation. *Journal of Experimental Social Psychology*, 42, 373-379.
- Veenman, M., Van Hout-Wolters, B. and Afflerbach, P. (2005). Metacognition and Learning: Conceptual and Methodological Considerations. *Metacognition Learning*, 1, 3-14.

- Volman, M. (2005). Variety of Roles for a New Type of Teacher. Educational Technology and the Teacher Profession. *Teacher and Teacher Education*, 21(1), 15-31.
- Walley, K., Custance, P., Orton, G., Parsons, S., Lindgreen, A. and Hingley, M. (2009). Longitudinal Attitude Surveys in Consumer Research: A Case Study from the Agrifood Sector. *Qualitative Market Research: An International Journal*, 12(3), 260-278.
- Watson, G. (1999). *Barriers to the integration of the Internet into teaching and learning: Professional development*. Ανακοίνωση στο the Asia Pacific Regional Internet Conference on Operational Technologies. Singapore. Retrieved March 2, 2019, from https://www.apricot.net/apricot99/Singapore_paper-Watson.html
- Webster, M. (1985). *Webster's Ninth New Collegiate Dictionary*. Springfield, MA: Meriam-Webster, Inc.
- Wicker, A. (1969). Attitudes versus Actions: The Relationship of Verbal and Overt Behavioral Responses to Attitude Objects. *Journal of social issues*, 25(4), 41-78.
- Wixom, B. and Todd, P. (2005). A Theoretical Integration of User Satisfaction and Technology Acceptance. *Information Systems Research*, 16(1), 85-102.
- Χουσουλάκης, Ε. & Νικολουδάκης, Ε. (2010). Διερεύνηση των Στάσεων των Εκπαιδευτικών της Πρωτοβάθμιας Εκπαίδευσης ως προς τη Χρήση Τεχνολογικών Καινοτομιών στην Εκπαιδευτική Διαδικασία, με βάση το Μοντέλο Αποδοχής Τεχνολογίας. *Αστρολάβος*, 14, 137-168.
- Yu, K., Lin, K., Han, F. and Hsu, I. (2012). A Model of Junior High School Students' Attitudes toward Technology. *International Journal of Technology and Design Education*, 22(4), 423-436.