Research Insights /
Изследователски проникновения

THE ROLE OF TEACHING ASSISTANTS IN MEETING SPECIAL EDUCATIONAL NEEDS AT MAINSTREAM SCHOOLS

Blagovesta Troeva
New Bulgarian University

Abstract. Legislative developments endorsing inclusive education have led to an increased role of school support staff. The paper explores the policies and practices related to the deployment of teaching assistants as a means of facilitating the inclusion of pupils with special educational needs in England. A special attention is paid to the debate about the role of teaching assistants and their reportedly adverse effect on pupils' academic achievements, as well as to some possible pathways to improvement. The analysis finds flaws in the deployment of teaching assistants, the training of school staff, the organization of classroom practice, and in the defining of roles within the teaching body. These controversial findings, however, do not come to mean that the increasingly inclusive system of education can function properly without teaching assistants, but that important decisions have to be made concerning the way the system utilizes this resource.

Keywords: teaching assistants, England, academic achievements, inclusion

Introduction

The ideology of inclusion has become an extensive part of the educational policy and theory in England since the progressive break-away from the psycho-medical model in 1950 – 60s. Among the vast spectrum of definitions of inclusive education, Booth (2006: 8) interprets it as, 'the process of increasing the participation of learners within and reducing the exclusion from, the cultures, curricula and communities of neighbourhood centres of learning'. The securing of this academic and social participation of pupils with SEN in mainstream settings is linked to the provision of additional support. This presents the so-called 'dilemma of difference' (Norwich, 2010), as the recognition of needs may lead to labelling, but without it, provision can hardly be granted. Provision in England assumes various forms, but deployment of teaching assistants is 'the preferred means for facilitating the inclusion of pupils with SEN' (Blatchford et al, 2012a: 15). Given the importance of this resource and the readiness of some other countries to adopt the same model, the paper sets out to explore the policies related to it, and their impact on practice, focusing mainly on school settings in England, but also drawing on examples from other countries. A special attention will be given to the debate about the

role of teaching assistants and their reportedly adverse effect on pupils' attainment, as well as to possible pathways to improvement.

Legislative Developments in England Leading to Increased Numbers of Teaching Assistants

In England, legislative developments endorsing more inclusive education have led to an increased role of school support staff. Indisputably, a cornerstone for the introduction of the inclusive agenda in the country was the Warnock Report, which advised that students with special educational needs should be educated in mainstream settings 'so far as possible' (The Warnock Report, 1978: 100). Prior to it, special educational needs were met in special schools, where children were educated with the help of teachers and the so-called Welfare Assistants, while mainstream pupils were rarely assisted by extra adults in the classroom (Hryniewicz, 2007: 11). The Education Act of 1981 legally defined the term 'special educational needs' (Frederickson et al., 2002: 34) and introduced statementing (Armstrong, 2007: 6). The Statement of SEN entitled pupils to provision that is different from or additional to the one normally available in mainstream schools (Frederickson et al., 2002: 35). A specific number of hours of support from a teaching assistant became 'a key feature' of the statement (Webster et al., 2013). Therefore, local educational authorities (LEA) and schools, 'using the model of non-teaching assistants like the Welfare Assistants', started employing support staff, whose contracts were often short-term and linked to particular pupils, and as pupils' needs were becoming more and more diverse, so did the role of their teachers and assistants (Lee, 2002: 2).

The effective instruction of pupils with SEN in mainstream settings became even more challenging with the increasing focus on attainment and accountability. The Education Reform Act of 1988 introduced the National Curriculum, and launched the league tables. That brought an additional emphasis on academic achievement: 'If schools allocated resources to pupils with SEN whose performance might not raise the aggregate achievement level, they were making what would appear in an open financial market a risky investment' (Frederickson et al., 2002). Indeed, a head teacher of an English mainstream school, which the author visited, openly expressed his reluctance to accept pupils with SEN for that reason. Schools felt increased pressure to raise the attainment of children with SEN and other low achievers. Therefore 'assistants were employed increasingly to work with groups of children who did not have formal statements, but who still needed extra support and help in the classroom' (Hryniewicz, 2007: 12). The challenge was heightened with the introduction of the National Literacy Strategy, the National Numeracy Strategy, Early Learning Support (Hryniewicz, 2007: 14). The National Curriculum was revised in 1999, to foster the meeting of the inclusive principles of 'setting suitable learning challenges, responding to pupils' diverse learning needs and overcoming potential barriers to learning and assessment for individuals and groups of pupils' (DfEE, 1999, cited in Hodkinson, 2010: 62). The need for differentiation was yet another boost for the increased recruitment of teaching assistants.

The enrollment of pupils with SEN in mainstream settings was further enhanced by The *Special Educational Needs and Disability Act* (SENDA, 2001: 316) and the revised *Special Educational Needs Code of Practice* (DfES, 2001). In 2002, Estelle Morris, the Secretary of State for Education declared: 'I want to create an environment where greater use is made of all resources and pupils are given the chance to learn at their own speed. Teaching assistants will be crucial in meeting this challenge and I call on all schools and local authorities to recognize this' (DfES, 2002, cited in Hryniewicz, 2007: 14). Clearly, in the use of 'all resources', teaching assistants were viewed as having a 'crucial', or main role in providing the individualized SEN support. The latter was required not only by the UK legislation but also by international documents such as the *UN Convention on the Rights of Persons with Disabilities* (UN, 2006: 24e).

Scholars concerned with research on teaching assistants and their deployment attribute their increased numbers in the UK mainly to the enrollment of children with SEN in mainstream settings (e.g. Lee, 2002, Blatchford et al., 2009, Blatchford et al., 2012). Indeed, the increase has been colossal: the data show a threefold rise from 1997 to 2010 (Devecchi et al., 2012); a nearly 150% rise between 2000 and 2010 (Webster et al., 2010); a 2:3 ratio of full-time teaching assistants to full-time teachers in primary schools (Webster et al., 2013: 3). The same tendency is observed in the USA, where the assignment of one-to-one paraprofessionals (the US equivalent of teaching assistants) is increasing 'as more students with greater disability-related support needs are placed in general education' (Giangreco, 2010a: 1).

It has to be noted though that the inclusion of pupils with SEN in mainstream settings is the main but not the only reason for the increased number of teaching assistants in schools. Other factors responsible for the steady rise are: the heavy workload of the teachers and difficulties in recruiting and retaining experienced teachers (Lee, 2002, Blatchford et al., 2012), the launch of the National Literacy and Numeracy Strategies, and of the National Agreement in 2003 (Blatchford et al., 2009), the 'availability in a [particular] local authority of funding to support the inclusion with SEN' (Blatchford et al., 2012). While acknowledging these other factors, the essay's focus is on exploring what is identified as the main reason for the increase – the relationship between SEN and teaching assistant support in schools.

The Disputable Impact of Teaching Assistants

Whether teaching assistants really facilitate inclusion has been a matter of debate since the beginning of the 21st c. The 'Good Practice Guide' (DfEE, 2000) claimed that there had been 'ample evidence from research and inspection that many teaching assistants are helping to raise standards in the classrooms in which they work', and quoted OFSTED's report from 1999 that 'well-trained teaching assistants are a key resource and are used very effectively in many primary schools.' How 'many' were those who were raising the standards and what was the effect of those who were not very 'well-trained' remained quite obscure. Actually, until 2009

there was insufficient research on the efficacy of teaching assistants' deployment (Blatchford et al., 2009).

At the turn of the century, a study on the impact of support staff on pupils' performance in the USA demonstrated that 'teacher aides have little, if any, positive effect on students' academic achievement' (Gerber et al., 2001: 123). It was found that if they are assigned to a particular pupil, the teacher became less engaged with him/her (Giangreco et al., 2001, cited in Giangreco, 2010a). Some researchers pointed out the lack of any 'systematic review of international literature' as to whether TAs were actually raising the educational standards (Giangreco et al., 2001, cited in Farell, 2010: 436). And in 2007, concerns were expressed about teaching assistants' failure to foster better learning and class participation (Giangreco and Doyle, 2007, cited in Farell, 2010).

Urged by insufficient research on the value of the support staff in English schools, a study was conducted over 2003-2008, whose aim was to provide a rigorous description of 'classroom- or pupil-based support staff', i.e. of teaching assistants, and of their impact on teachers, teaching and pupils (Blatchford et al., 2012a: 1). As the findings of the Deployment and Impact of Support Staff (DISS) project started to emerge, it became clear that the meeting of SEN in mainstream schools was closely linked with the deployment of teaching assistants (Blatchford et al., 2012a). Published in 2009, the findings turned out to be quite disturbing for both educators and policy-makers. As we have already seen, schools trying to increase their achievability in the highly competitive education sector had attracted a considerable amount of supporting staff to help raise standards. The DISS project, however, found that, **'The *more* TA support pupils received, the *less* academic progress [they] made'** (Blatchford et al., 2009: 5).

A few major causes for the inefficacy of the teaching assistants' role were identified: gaps in the 'preparedness' of both teachers and teaching assistants, lack of cooperation between teachers and teaching assistants, inefficient deployment of teaching assistants, and flaws in the classroom practice. It was found that 75% of the teachers did not receive any training as to how to work together with teaching assistants, were not allocated time for planning or feedback with the teaching assistants, and if there was any communication with them, it was voluntary and unpaid on part of the teaching assistants. Many teaching assistants felt unprepared for the class and had to tune in to the teacher's instruction during the lesson. In the lesson themselves, while teachers tried to foster understanding and independent thinking, teaching assistants were more focused on performing the task, and often provided ready answers for the students (Blatchford et al., 2009).

Most importantly, the primary reason for the TAs' unsatisfactory impact on pupils' academic results was that **in the presence of teaching assistants, teachers tend to interact less with pupils who need the most qualified help – those with SEN:** 'TA interaction with pupils increased, and teacher interaction decreased, as pupil level of SEN increased' (Blatchford et al., 2009:3). Thus, though being well-meant, the overreliance on teaching assistants has led to the paradox that, 'some students in the

classroom are taught by less qualified people while the teacher deals with the legitimate inhabitants of the classroom' (Lee, 2007: 181). This finding was conforming to the findings from the USA a few years earlier (see above). It seriously contradicts the inclusion ideal of providing equal opportunities for quality education to all pupils. One of the many questions this situation raises is about discrimination in education, and it has been suggested that such a regime of teaching would not be allowed if it concerned pupils without SEN (e.g. Giangreco et al. 2005, cited in Webster, 2013).

Possible Pathways to Improvement

Training

Interestingly, the DISS report did not point out TAs' lack of qualification as a major cause for the worrying outcome. Would the situation not change if teaching assistants' qualifications and the requirements for TA employment were raised? Giangreco interprets the urge to consider the training of teaching assistants as a solution to the problem as an "overly simplistic, and ultimately insufficient response" (2010b: 344). The qualifications of teaching assistants can hardly approach those of teachers, and even if they do, how many educational institutions will be able to provide a reasonable payment? Even with their present duties on hand, teaching assistants are underpaid (Blatchford et al., 2009). Totseva (2008) befittingly asks, 'if we go in the direction of teaching assistants acquiring pedagogical qualifications… why would they be assisting teachers and not acting as teachers on their own right?'.

That does not mean that proper training of teaching assistants should not be aimed for. In fact, the Green Paper *Excellence for All Children* acknowledged the need of teachers and teaching assistants' training in the field of SEN and set a goal of creating 'a national framework for training of learning support assistants' (DfEE, 1997). The Ministry for Education and Skills issued a number of documents such as the *Good Practice Guide* (2000), as well as consultation (2002) and training materials (2000, 2001) for teaching assistants (Farell, 2010: 3). Devecchi et al. admit that training opportunities have improved after the signing of the National Agreement in 2003, but argue that there is still 'lack of a nationally recognized professional qualification' (2012: 174)

Undoubtedly, when teaching assistants have received quality training, their work yields better results. This was acknowledged by OFSTED (2006: 11). Also, in Farell et al.'s review of the literature concerned with the efficacy of teaching assistants, it was found that TAs could raise the achievement of children with learning difficulties 'provided they are trained and supported in this process' (2010: 447). Support requires good collaboration between all members of the school staff and clear designation of roles is extremely important when working with pupils with SEN: 'effectiveness tended to depend on the extent to which individuals worked as a team, which in turn depended – amongst other things – on the clarity with which roles and expectations of all involved were discussed and defined' (Thomas, 1992 cited in Cremin 2005).

Defining Roles

The value of clearly defined roles is stressed upon by a number of researchers. At present, teaching assistants' roles are largely dependent on the needs of the employing institution, are not uniform, and can be seen rather as a 'continuum of experiences', ranging from 'ancillary-like' to 'teacher-like' (Drake et al., 2006). One thing that is inarguable, however, is that teaching assistants often assume a pedagogical role (Blatchford et al., 2012a). The authors of the DISS report question the appropriateness of such a duty and call for its further exploration:

> The DISS project has called for schools to… ensure that they do not routinely support low ability/SEN pupils and risk pupils' separation from the teacher and the curriculum. Plus, teachers should take responsibility for the pedagogical planning of pupils supported by Teaching assistants, and not hand the planning, delivery and assessment of interventions to under-prepared and inadequately-supported Teaching assistants.
>
> **(Blatchford et al., 2009: 6)**

Similar findings and concerns have been voiced in the USA. Giangreco explores research showing that paraprofessionals assume teaching roles for some pupils with disabilities and take part in curricular planning and decision making (2010a: 3). He identifies a number of 'detrimental effects' of one-to-one support, some of them being: physical separation from the class, dependence on paraprofessional for participation, barriers to interaction with peers, feelings of stigmatization, risk of being bullied (Giangreco, 2010a: 5).

Unfortunately, awareness of all these problems has not brought about substantial changes in the deployment of TAs in England. The *Making a Statement (MAST) project* from 2013 found once again that the presence of teaching assistants led to statemented pupils' separation from both teacher and peers, that TAs were responsible for the planning of lessons and teaching pupils with SEN more often than teachers, and that the quality of pedagogy was lower and insufficient to raise the attainment standards (Webster, 2013: 2 – 3).

What are the grounds then for suggesting that TAs facilitate pupils' inclusion? On the one hand, they often lack the expertise needed to help pupils with SEN to 'participate in the common enterprise of learning', which is Mary Warnock's definition of inclusion (Warnock, 2010: 32). On the other hand, they might be employed with a view to facilitate the social inclusion of pupils with SEN and their developing of, in Norwich's words, a 'sense of social belonging to 'common schools' (2010: 62). Thus, schools need to be clear about the objective they have for employing support staff (Farell et al., 2010). If it is to relieve teachers from their workload and provide general support, in most cases TAs would be efficiently doing that. If, however, schools aim to raise students' academic standards, TAs should be well-trained, supported, and their work should be monitored. This was also one of the main recommendations of the MAST report (Webster, 2013: 72).

Blatchford et al. seem to be doubtful about the potential of teaching assistants' pedagogical role: 'it is unreasonable to expect teaching assistants to produce similar learning outcomes as teachers' (2012b: 50). But there are evidences in the international practice

where SEN support staff has a strong pedagogical training. Such is the case in Italy where 'support teachers are qualified teachers who undergo further post-graduate training in pedagogy, didactic psychology, and child neuropsychiatry beyond their initial teacher training'. (Devecchi et al., 2012: 174). Even though the roles of Italian support teachers and English teaching assistants do not overlap completely, we still observe the same negative effect of pupils with SEN being separated from the teacher as the latter leaves the responsibility for them to the support teacher (Devecchi et al., 2012). That means that internationally not only the position of teaching assistants but also that of teachers in the inclusive classroom needs to be re-considered.

The Fault Is in the System

The solution to the dilemma of teaching assistants has to be sought within the system. Webster et al. claimed, 'We should make it plain that we do not see TAs themselves as the problem, but the way in which schools misuse this valuable source' (2013: 77). Blatchford et al. (2009) also recognized that the decisions that have to be made about TAs' role are not within their control. In the USA, Giangreco as well suggests that 'systematic changes [are] needed to rectify the inherent inequalities present in schools where the more challenging the learning characteristics of the student, the more likely he or she is to receive instruction from teaching assistants rather than teachers' (2010b: 344).

Pathways for improvement were tested by the EDTA project of 2010 – 2011, which addressed the problematic areas identified by the DISS project through an implementation of certain strategies. Teachers and teaching assistants received extra time for planning and feedback, teachers worked more often with SEN pupils while teaching assistants helped the rest of the class, teaching assistants' instruction to pupils was more focused on understanding and not on task completion (Blatchford, et al., 2012b). The project proved that changes to the position of teaching assistants in the system were capable of increasing the quality of their support.

As a matter of fact, the DISS project itself recognized a number of benefits of teaching assistants' work at schools, such as: providing specialist help (e.g. ICT skills), allowing more teaching time, relieving the teacher of stress and workload and consequently increasing teachers' job satisfaction, allowing more individualized attention for some pupils and differentiation of tasks, improved pupils' discipline and motivation, more active pupil interaction with adults, more classroom engagement for pupils with SEN in secondary school (Blatchford et al., 2009). All these benefits are not to be underestimated.

Conclusion

We have seen that driven by the inclusionary rhetoric of meeting pupils' special education needs and supported by legislative changes, educators in England have started massive utilization of teaching assistants in mainstream schools. We looked in detail at the main issues arising from recent research on the impact of teaching assistants on the education of pupils with SEN. The analysis demonstrated that there are flaws in the way teach-

ing assistants are deployed, school staff trained, classroom practice organized and roles defined. However, benefits of teaching assistants' support are also noticeable. The controversial findings do not come to mean that the increasingly inclusive system of education can function properly without teaching assistants, but that important decisions have to be made concerning the way the system utilizes this resource. None of the research papers and documents explored suggests termination of teaching assistants' deployment: 'Data calling into question the wisdom of current teacher assistant utilization … should not be misconstrued as blaming teacher assistants for this predicament or as a call to eliminate their involvement in public education' (Giangreco, 2010b: 343). If there are faults in the system of deployment of teaching assistants, these can be rectified through proper policies and interventions. Different countries which are considering the possibility of attracting additional classroom staff to support inclusion in mainstream settings need to consider carefully both the positive and negative experiences of a country like England. Also, differences in the political, economic, social and educational climate of the particular country can yield different results so policy-makers should beware of any 'simplistic transfer of educational policy and practice from one context to another (Crossley et al., 2003: 6).

REFERENCES

Armstrong, A.C., D. Armstrong & I. Spandagou (2010). *Inclusive education: International Policy and Practice*. London: Sage.

Armstrong, F., & L. Barton (2007). *Policy, Experience and the Challenge of Inclusive Education: The Case of Inclusive Education*. Dordrecht: Springer.

Blatchford, P., P. Bassett, P. Brown, C. Martin, M. Russell., & R. Webster (2009). *The DISS Project: Background, Aims and Methodology (briefing notes)*, London: Institute of Education, University of London. (Available at: www.schoolsupportstaff.net/BN.pdf, (accessed: 3/04/2014).

Blatchford, P., A, Russell, & R. Webster (2012a). *Reassessing the Impact of Teaching Assistants: How Research Challenges Practice and Policy.* Abingdon, Oxon, UK: Routledge.

Blatchford, P., R. Webster, & A. Russell (2012b). *Challenging the Role and Deployment of Teaching Assistants in Mainstream Schools: The Impact on Schools. Final Report on the Effective Deployment of Teaching Assistants (EDTA) project, Institute of Education, University of London, Available at: http://www.schoolsupportstaff.net/edtareport.pdf, (accessed: 03/04/2014)*

Booth, T. (2000). Inclusion and Exclusion policy in England: Who Controls the Agenda?, In Armstrong, F., D. Armstrong & L. Barton, (eds.) *Inclusive Education. Policy, Contexts and Comparative Perspectives,* London: David Fulton.

Cremin, H., Thomas, G., Vincett, K. (2005). Working with Teaching Assistants: Three Models Evaluated*, Research Papers in Education*, 20 (4), 413 – 432.

Crossley, M., & K. Watson (2003). *Comparative and International Research. In Education: Globalisation, Context and Difference*. London: Routledge.

Department for Education and Employment (DfEE) (1997). *Excellence for All Children: Meeting Special Educational Needs,* London: HMSO.

Department for Education and Employment (DfEE). (2000). *Supporting The Teaching Assistant: A Good Practice Guide*, London: DfES Publications, Available at: http://dera.ioe.ac.uk/id/eprint/4429 (accessed: 20/01/2015)

Department for Education and Skills (DfES) (2001). *Special Educational Needs Code of Practice*. London: DfES. Available at: http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eOrderingDownload/DfES%200581%20200mig2228.pdf, (accessed: 05/04/2014).

Devecchi, C., F. Dettori, M. Doveston, P. Sedgwick & J. Jament (2012). Inclusive classrooms in Italy and England: the role of support teachers and teaching assistants, *European Journal of Special Needs Education* 27 (2), 171 – 184, London: Routledge.

Drake, P., A. Jacklin, C. Robinson, J. Thorp (2006). *Becoming a Teaching Assistant*: *A Guide for Teaching Assistants and Those Working with Them*, London: Paul Chapman Publishing Ltd.

Farell, P., A. Alborz, A. Howes, & D. Pearson (2010). The Impact of Teaching Assistants on Improving Pupils' Academic Achievement in Mainstream Schools: a Review of the literature, *Educational Review,* 62:4, 435 – 448, London: Routledge.

Frederickson, N., & T. Cline (2002). *Special Educational Needs, Inclusion and Diversity,* Buckingham, Philadelphia: Open University Press.

Gerber, S. B., J. D. Finn, C. M. Achilles, & J. Boyd-Zaharias (2001). Teacher Aides and Students' Academic Achievement. *Educational Evaluation and Policy Analysis*, 23 (2), 123 – 43.

Giangreco, M. F. (2010a). One-to-One Paraprofessionals for Students with Disabilities in Inclusive Classrooms: Is Conventional Wisdom Wrong?, *Intellectual and Developmental Disabilities,* 48 (1), 1 – 13.

Giangreco, M. F. (2010b). Utilization of Teaching Assistants in Inclusive Schools: Is It the Kind of Help that Helping Is about?, *European Journal of Special Needs Education,* 25 (4), 341 – 345.

Hodkinson, A. (2010). Inclusive and Special Education in the English Educational System: Historical Perspectives, Recent Developments and Future Challenges, *British Journal of Special Education,* 37: 2, 62 – 67.

Hryniewicz, L. (2007). *Teaching Assistants: The complete handbook. 2nd edition.* Norwich: Adamson Publishing. (first published in 2004)

Lee, B., (2002). *Teaching assistants in schools: the current state of play*, Slough: National Foundation for Educational Research.

Lee, R., (2007). It's a fit-up! Inclusive Education, Higher Education, Policy and the Discordant Voice, In: Barton, L. & F. Armstrong (eds.), *Policy, Experiences and Change: Cross Cultural Reflections on Inclusive Education,* Dirdrecht: Springer.

Norwich, B. (2010). A Response to 'Special Educational Needs: A new Look', In Terzi, L. (ed.), M. Warnock., & B. Norwich, *Special Educational Needs: A New Look*, London: Continuum International Publishing Group.

Ofsted, (2006). *Inclusion: does it matter where pupils are taught?*, Available at: http://webarchive.nationalarchives.gov.uk/20141124154759/http://www.ofsted.gov.uk/resources/inclusion-does-it-matter-where-pupils-are-taught, (accessed: 20/01/2015).

Special Educational Needs and Disability Act (SENDA), (2001). London: HMSO, Available at: http://www.legislation.gov.uk/ukpga/2001/10/section/1 (accessed: 20/01/2015).

The Warnock Report (Report of the Committee of Enquiry into the Education of Handicapped Children and Young People) (1978), London: HMSO, Available at: http://www.educationengland.org.uk/documents/warnock/warnock1978.html, accessed: 20/05/2015.

Totseva, Y., (2008) *The Teaching Assistant: A Pedagogical Figure or a Social Worker in the Multicultural School.* Available at: http://ytotseva.blogspot.co.uk/2008/11/blog-post_09.html (accessed: 20/01/2015).

Warnock, M., (2010) Special Educational Needs: A New Look, In Terzi, L. (ed.), M. Warnock, & B. Norwich, *Special Educational Needs: A New Look*, London: Continuum International Publishing Group.

Webster, R., P. Blatchford, P. Bassett, P. Brown, C. Martin, & A. Russell, (2010) Engaging with the Question 'Should Teaching Assistants Have a Pedagogical Role?, *European Journal of Special Needs Education*, 25 (4), 347 – 348.

Webster, R., & P. Blatchford, (2013) *The Making a Statement Project – Executive Summary*. London: Dept. of Psychology and Human Development, University of London. Available at: http://www.schoolsupportstaff.net/mastsummary.pdf (accessed: 06/04/2014).

✉ **Mrs. Blagovesta Troeva**
Department of English Studies
New Bulgarian University
Sofia, Bulgaria
E-mail: btroeva@nbu.bg