BRIDGING THE GAP BETWEEN TEACHING AND RESEARCHING IN THE FIELD OF VISUAL IMPAIRMENT

[1]VASSILIOS ARGYROPOULOS, [2]MAGDA NIKOLARAIZI

Department of Special Education, University of Thessaly
E-mail: [1]vassargi@uth.gr, [2]mnikolar@uth.gr

Abstract - This paper highlights the framework and discusses the results of an action research network project which aimed to promote academic access in seven schools within which students with visual impairments were enrolled. The persons involved in this collaborative scheme were general teachers, special education teachers and academic staff, sighted students and students with visual impairments. The findings of the study indicated that the implementation of the action research network resulted in the development of an inclusive and collaborative thinking and the adoption of relevant teaching practices, strategies and techniques, which promoted the children's access to the curriculum and supported the teachers' and student teachers' professional development.

Keywords - Action Research, Special Education Teachers, Visual Impairment, Network.

I. INTRODUCTION & BACKGROUND INFORMATION

This paper highlights the framework and describes the outcomes of an action research network project (ARNP) which aimed to promote academic access to students with visual impairments in a set of seven Greek general and special schools. The teachers of these schools did not have at their disposal appropriate educational material for all disciplines and also did not have the background or the experience to design and develop it. Additionally, they felt alone, since they could not share their worries and concerns with other teachers who were working in other educational settings who might have similar experiences with them.

Based on the above teachers' difficulties, an action research network project was shaped within which the following aims were set for each school: i. to conduct a project that would promote the academic access of students with visual impairment following the principles of an integrated curriculum, ii. to conduct in-service courses and many workshops, relevant to the design and to the development of educational material for students who had visual impairment, and iii. to involve teachers and students with and without visual impairment from all schools in an interactive platform through a portal on the internet.

The integrated curriculum framework was adopted in this ARNP, because it provided the conceptual basis for the collaboration within and between the seven schools. This approach was challenging because in Greece most schools teaching takes place within a discipline-based curriculum approach, which has been criticized as offering fragmented, disconnected knowledge and in turn might have impeded students to capture and conceptualize the connections between subjects [1].

II. WHY ACTION RESEARCH NETWORK

The principles of action research, stressed by O'Hanlon [2], strengthened the argument about choosing action research as the best methodology for the purposes of the present project. According to her, action research is a process which incorporates practices such as: research and investigation, analysis of practice, applying theory through action, evaluating practice/curriculum, involvement of colleagues and others concerned, reflection, discussion and sharing of meanings, validation of professional change and constant curriculum renewal (pp. 181-182).
All the above practices were relevant to the needs of this project. This project followed the process of a networking, which is actually the process of establishing contacts through social activities. Networking in this educational context implied communication, exchange experience through meetings with a view to diffusing ideas and proposals in order to be utilized [3].

III. THE MAIN COMPONENTS OF THE NETWORKING MODEL

The operation of the project was based on the activities of five main groups. Each group had specific roles and commitments. The following pattern describes the interactions taken place between the groups. The interactions between the groups are shown by arrows, most resulting in a two-way flow of information (see Figure 1).

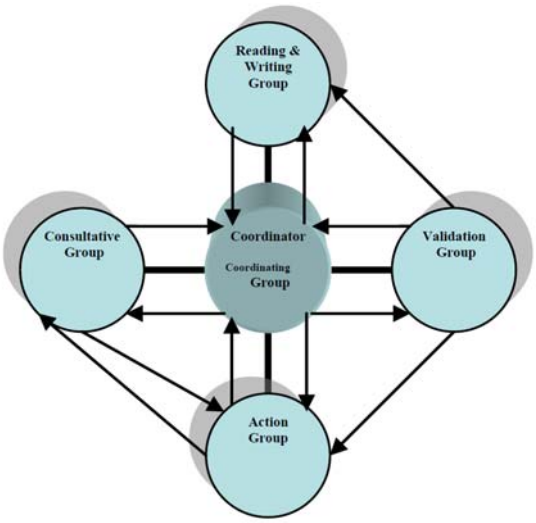


Figure 1. The Networking model

The main components of the networking model were as follows:

• The Reading and Writing Group (RWG), comprising of academic staff, student teachers and teachers from primary and secondary education, whose task was to obtain information from relevant literature (books and journals) about haptic apprehension, conceptual and tactile maps, assistive technology for the blind and action research.

• The Consultative Group (ConG) was comprised of experts in designing and developing haptic educational material for students with visual impairment. Their tasks in this action research network were to advice and provide instructions to the teachers of the schools regarding all the appropriate adaptations from print into a suitable tactile representation, artifacts and such. This was feasible through in-service courses and workshops.

• The Validation Group (VG) was comprised of specialists in research methodology and in the field of visual impairment. The VG was a rather small but flexible group. This group was in contact with the coordinating and the consultative group gathering and cross-checking different actions and data. In turn, the Validation Group proposed the Coordinating Group new lines for the continuation of the network project after evaluating it from many points of view.

• The Coordinating Group (CG) was comprised of the coordinator of the action research network accompanied with academic staff and experts in assistive technology for the blind and in computer databases information. Experts from this group planned and developed the portal of the network within which there was a link for the students to download and upload their thoughts, ideas and knowledge (e-magazino).

The Coordinating Group was informed about the work of all Groups (see Fig. 1) on regular basis, organized in-service courses for the teachers and kept the timeline of the action research network. The CG was responsible for the overall scientific and technical support.

• The Action Group (AG) were actually all the primary and secondary teachers and students who identified themselves as wishing to participate in the project by responding to an open invitation by the coordinator of the project. The total number of the participating schools was seven. Five were special primary schools for students with visual impairment and two were general secondary schools within which blind students were enrolled. Two hundred and ten (210) students, aged 9-18 and fifty (50) teachers, aged 27-58 took part in the action research network project. The primary blind students were 32, whereas the secondary sighted students were 167 and the blind secondary students were 11. Finally, 25 teachers participated from the primary special schools and 25 from the two general secondary schools.

IV. LEVELS OF ACTIVITIES

The main activities at this level involved the following: i. the teachers submitted reports describing the problems they were facing regarding the academic access of their students, ii. the CG and VG assessed the teachers' reports (see i.) and, iii. the CG and VG categorized and put in hierarchy their needs according to their reports.

A. Preliminary Activities

The main activities at this level involved the following: i. the teachers submitted reports describing the problems they were facing regarding the academic access of their students, ii. the CG and VG assessed the teachers' reports (see i.) and, iii. the CG and VG categorized and put in hierarchy their needs according to their reports.

B. Vertical Activities

This level of activities referred to every single school. The head of each school was functioning as the coordinator of all the activities which were taken place in his/her school and then provided an extended report to the Coordinating Group (CG). Every school carried out one project with an interdisciplinary team of teachers. Classes were divided into small groups involved students with and without visual impairment and worked out activities that their teachers suggested. The synthesis of the groups was changing so that all students who were blind had the chance to interact and collaborate with their sighted classmates. Finally, all students, through appropriate assistive technology, visited the e-magazino in the portal sharing opinions and experience that they had gained from the project.

C. Horizontal Activities

This level of activities referred to the networking actions that concerned all schools. Specifically, in all seven schools, meetings and discussions took place between the heads and the members of the Coordinating Group. The reflective phases of action research in every school provided data enabling the Coordinating Group in conjunction with the representatives of every school (usually the heads) to reflect on the collected data and move on to the next step of re-planning and acting.

All teachers from all schools participated in in-service training courses regarding integrated curriculum, haptic apprehension, design and development of appropriate tactile material. They could also upload their best practices accompanied with photos and videos to the portal sharing knowledge and experience. In this way, the network broadened its context to other teachers who were interested in educational innovations, teaching methods and curriculum adaptations).

V. THE ROAD MAP OF ACTION RESEARCH NETWORK PROJECT

All the above activities followed a cyclical process common to that of action research. These cycles of development have taken place in this network [4]. The main aspects of the present action research network project are described in brief below (Table 1).

Groups	Aspects	Duration	Description
CG, AG	Preliminary level	3 months	• Meetings – discussions about teacher needs – Teachers' reports • Evaluation of the problems regarding the academic access of students with visual impairment • Hierarchy of the problems • Suggestions from the CG
RWG, ConG, CG, VG	Planning & developing (horizontal level)	6 months	• Printed material • Haptic educational material • Portal • Site
AG, CG, ConG	1st Phase of training	30 hours	• In-service courses • Workshops (plenary sessions)
AG, CG, ConG, VG	Planning, acting, reflecting, evaluating and re-planning (vertical level)	6 months	• Teachers filled in planning, acting, reflecting and re-planning sheets • Students kept memos • Teachers and students organized projects • Periodical visits from the ConG • Visits from the Coordinator
AG, CG, ConG	2nd Phase of training	30 hours	• In-service training courses • Workshops (plenary sessions based on the reflection phases)
CG, ConG, AG, VG	Dissemination	1 day	• Every school presented its project • Overall review

Table 1. : Main Aspects and descriptions of the ARNP

VI. OUTCOMES

The ARNP lasted for 18 months. It was considered essential that the action research process was initiated based on the problems that the teachers of special and general schools were facing regarding the academic access of their students with visual impairment. This data constituted the baseline of the planning of the whole project at its horizontal basis. It was also essential to develop a bibliographic database so that the participants (teachers) would have a common corpus of information. In turn, every school worked independently (vertical basis) and were in direct contact with the Groups as described in Figure 1.

The outcomes were fruitful and can be described as follows:

• The schools designed and developed projects based on the features of integrated curricula. According to their reports,

A. they considered learning as a holistic process allowing the use of concepts from different subjects,

B. they divided their classes into small groups and let them to interact one each other. The students who were blind, had the chance to build relationships with their sighted classmates based on dialogue and mutual support and respect, and
C. They planned and developed their own educational material which was haptic and accessible to all students (vertical activities of the network).

• The computer database (portal) became an active domain of exchanging knowledge and experience. It included the material that the Reading and Writing Group obtained as well as all the information about the evolution of the projects, which were carried out in the schools. This database grew in a way, which was designed to be supportive for teachers.
• Many students had the chance to interact with each other because they had their own e-magazino, which was designed and embedded in the portal.

At the beginning of the ARNP, the teachers felt stressed and a bit confused of what exactly they had to do. However, through their reflective memos and discussions with the CG and through meetings, which took place with the ConG, they managed to collaborate effectively within their own school and with the other schools, which participated in the network. The teachers also mentioned that the main characteristic of the training that they received (see Table 1) occupied a pure workshop character and gave them a hands-on experience. In this way, they managed to bridge theory and practice, challenging their teaching role and re-examining their ideas and perspectives. Integrated curricula demand collaborative schemes within and between teachers and students. The model of the integrated curriculum actually entails inclusive practices, which in turn are subject to constant reflection and continuous assessment [5].

VII. CONCLUSIONS

The existence of gaps between theory and practice, research and its corresponding applications as well as inconsistencies between policy makers and practitioners has led to undeveloped relations within and between professional development and pedagogy [3]. It was revealed, from this action research network project, that it was needed to make a shift from a "didactical" perspective to a more "dialectical" one, since teachers had to modify their teaching and operate as facilitators sharing experience and best practices [6]. For this reason, the barriers needed to be substituted by bridges connecting theory and praxis [7], teaching and researching giving the reasoning for any adopted change [8-9]. Finally, it is argued that a flexible and integrated curriculum has a strong impact on the blind students' academic access and on their successful integration as well [10-12].

REFERENCES

[1] L. Reisberg, "Facilitating inclusion with integrated curriculum: A multidisciplinary approach", Intervention in School and Clinic, vol. 33, pp. 272-277, 1998.
[2] C. O'Hanlon, "Why is Action Research a Valid Basis for Professional Development?" In R. McBride (ed), "Teacher Education Policy: Some Issues Arising from Research and Practice", Falmer Press: London, pp. 179-191, 1996.
[3] S. Kemmis, and R. McTaggart, "The Action Research Planner" (3rd ed), Victoria, Australia: Deakin University, 1988.
[4] S. Chen, B. Mulgrew, and P. M. Grant, "A clustering technique for digital communications channel equalization using radial basis function networks," IEEE Trans. on Neural Networks, vol. 4, pp. 570-578, July 1993.
[5] V. Argyropoulos, and M. Nikolaraizi, "Developing inclusive practices through collaborative action research", European Journal of Special Needs, vol. 24, no. 2, pp. 139-153, 2009.
[6] J. Elliot, "Action Research for Educational Change", Milton Keynes, Open University Press, 1991.
[7] R. Bawden, "Towards Action Research Systems", In O. Zuber-Skerrit (ed), "Action Research for Change and Development", Centre for the Advancement of Learning and Teaching (CALT), Griffith University, Brisbane, pp. 21-51, 1990.
[8] V. Argyropoulos, and M. Stamouli, "A collaborative action research project in an inclusive setting: Assisting a blind student", British Journal of Visual Impairment, vol. 24, no. 3, pp. 128–134, 2006.
[9] V. Argyropoulos, M. Nikolaraizi, S. Chamonikolaou, and C. Kanari, "Museums and people with visual disability: An exploration and implementation through an Erasmus+ project", Proceedings of EDULEARN16 Conference, Barcelona, Spain, pp. 4509-4516, 2016.
[10] P. Hatlen, P. "The Core Curriculum for the Blind and Visually Impaired Students, Including those with additional disabilities", In A. J. Koenig, and M. C. Holbrook (Eds), Foundations of Education. Vol. II. Instructional Strategies for Teaching Children and Youth with Visual Impairments, New York: AFB Press, pp. 779-784, 2000.
[11] D. Hussey, "Curriculum issues", In H. Mason, and S. McCall, (eds), "Visual Impairment: Access to Education for Children and Young People", David Fulton Publishers: London, pp. 366-376, 1997.
[12] J. Terwel, "Curriculum differentiation: Multiple perspectives and developments in education", Journal of Curriculum Studies, vol. 37, no. 6, pp. 653-670, 2005.

★★★