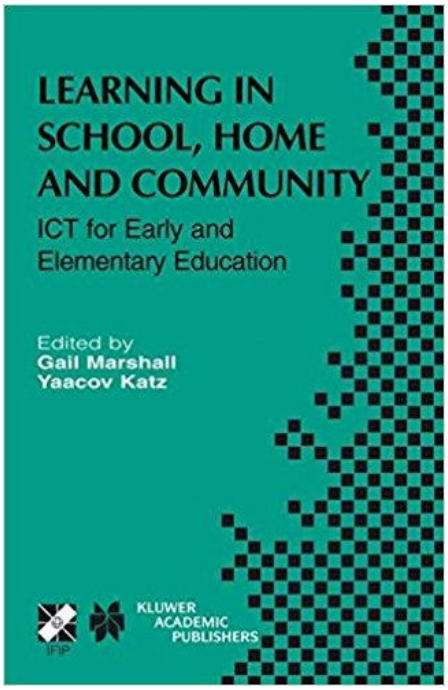
Learning in School, Home and Community ICT for Early and Elementary Education

(Book Review)

By Samet BAL (samettbal@gmail.com)
National Defense University, Turkish Air Force Academy, Turkey
ORCID: 0000-0002-2815-3944



Book Details:

Learning in School, Home and Community ICT for Early and Elementary Education - 2003rd Edition by Gail Marshall (Editor), Yaacov Katz (Editor)

Hardcover: 172 pages

Publisher: Springer; 2003 edition (February 28, 2003)

Language: English

ISBN-10: 1402073674

ISBN-13: 978-1402073670

Price: 100$ - 160$

Introduction

The current century has offered us some advantages in communication, our daily lives, health and for sure in education thanks to the improvements seen in the field of technology. Technological facilities let teachers turn their classes from teacher-centered methods to learner-centered methods. It enables students to get their classes in an active, easy and more attractive way and every day, more and more teachers start getting interested in integrating technological facilities with their classes by benefiting from Computer Assisted Language Learning and Information and Communication Technology (ICT) . (Ghasemi, Hashemi; 2011)

Up to now, studies have shown that when teachers make use of the technology in their classes when preparing worksheets, databases, activities, curriculums, assignments; it makes students much more active and enables them to enhance their motivation and the skills such as collaboration, analytical thinking and communication. (Grabe & Grabe, 2005)

Beside teachers, countries also see how important making use of technology in education is and they start working on this issue and start investing money to make their education updated and more effective regarding the needs of the century. (Papanastasiou & Angeli, 2008) However, supplying technologies in classrooms is not enough to do. Because of the fact that every teacher is affected by his beliefs, background, attitudes, traditions educational applications and knowledge of methods and approaches (Lim &Khine, 2006; Thomas & Stratton, 2006); they should be educated and get aware of how to use and why to use these facilities in their classes.

Regarding all these benefits and studies made before; teachers should know how to enable ICT in their classes and they can achieve this through some ICT books and on their own. At this point, one of these ICT books *"Learning in School, Home and Community Let for Early and Elementary Education"* will be evaluated in this review paper. The books include 3 parts which are learning, teaching and policy; these parts

offer 17 papers in total with the aim of introducing ICT in terms of each factor and discuss the key points.

Parts and Chapters

Part 1: Learning

Part 1 is built on discussing ICT in terms of "Learning" and the first chapter is "Learning in school and out: Formal and informal experiences with computer games in mathematical contexts", Nicola Yelland, tries to analyze how effective some games are in learning mathematic for young learners. This study deals with children's preferences and their evaluations of games which necessitate mathematics in some ways; they also try to find what features appeal children and ask their ideas. The study focuses on 20 primary school students and their ages range from 5 to 10 years. The children were invited to play 25 games on the computers and all of the games were relevant to mathematics in some way. The study revealed that games' appealing the students was up to the environment, software and the age and gender of the children and found out that children liked the games such as open-ended puzzles or problem-solving games not the repetitive ones. This study showed that these games enabled students learn not only in class but also outside the classroom and they got the chance to join actively in collaborative problem solving in the classroom. It was also seen that after-school environment provided students with the opportunity to explore concepts in mathematics through technology and the study revealed that informal setting was not the only way to learn mathematics.

Part 1, the second article is Using technology to encourage social problem solving in preschoolers by Mandy B. Medvin, Diana Reed, Deborah Behr and Elizabeth Spargo. This study focused on facilitating social skills in preschool children by using computers, it was also stated that some studies were made to investigate that situation and they found inconsistent results. This study focused on 36 children whose ages ranged from three to five and the students were selected from 2 different schools and some computers were placed at these schools and games were installed. To observe and document the students' behaviors, cameras were set up at the

computer stations. Before letting the students use the computers, researchers announced three rules to students "1. Find a Friend 2. Help a Friend 3. Share the Mouse". All these rules were given to set up a friendly atmosphere in which social problem solving would be fostered because "find a friend" made students to form groups of 2 or more; so they got the chance to interact with their friends; "help a friend" led students have the opportunity to follow his friend for a purpose since they would help each other when something went wrong and "share the mouse" encouraged the students to give the mouse their friends after a time without insisting on playing much more, which enabled them not to have a problem in sharing the computer. After the process was done, they found out that if the group size was bigger, socialization would increase, too and children helped each other when they had problems; finally, it was seen that children achieved to perform a peer collaborative model at these computer stations; in other words, computers helped a lot to enhance important social skills in young children.

Part 1, third article "Using electronic mail communication and metacognitive instruction to improve mathematical problem solving" was prepared by Bracha Kramarski and Adiva Liberman. In this study, they examined the effects of e-mail communication, which was embedded with metacognitive instruction, between students and teachers on mathematical problem solving tasks. There were 119 students studying at 5th grade; they all were busy with problem solving activities; but, they were divided into 3 groups; the first group was built on e-mail communication with metacognitive instruction; the second group was busy just with e-mail communication; the third group was busy with face-to-face communication which was the control group. These 3 groups practiced problem solving for 6 weeks through authentic tasks and they were asked to write down their decisions during this process. To see the effects of these learning environments, pre-test and post-test were applied, which focused on their mathematical problem solving. Finally, it was seen that e-mail conversation with metacognitive instruction was more effective; students exposed to that learning environment outscored the other students in terms of "processing information", "using mathematical strategies" and "using

mathematical communication". This study revealed that students getting metacognitive instruction showed better performance in reorganizing and processing the information, which meant that they outperformed the other groups which exposed to learning environments without metacognitive instruction.

The fourth article is "Online searching as apprenticeship Young people and web search strategies" by Matthew Pearson. In his study, he investigated online searching skills of young children, which were 9 and 10 years old children. They were asked to use online sources and local sources. To collect the data, the researcher conducted interviews with the children about their interactions with information sources. After his observations and interviews were conducted; it was seen that the children used local sources and online sources by downloading files and surfing on the internet and used local sources and CDROMs. Finally, it was seen that students favored and were willing to use local sources and CD-ROMs rather than Internet and online sources because the interviews revealed that students regarded the speed of the internet as a problem; it was too slow, which made local sources more practical for them.

Part 1, fifth article is "*The use of virtual reality three-dimensional simulation technology in nursery school teacher training for the understanding of children's cognitive perceptions*" by Yaacov J. Katz. This study investigated the effects of 3D virtual reality simulation which was designed to train teachers of nursery school in the understanding of children's cognitive perceptions. Two learning environments were prepared to see the effects of 3D virtual reality simulation model. 89 teachers who were in their first year at the school as a teacher attended the program. As the experimental group; 45 teachers were exposed to 20 hours of 3D virtual reality simulation while 44 teachers which were in the control group were exposed 20 hours of workshop activity. These two learning environments were created to foster the understanding of children's cognitive perceptions. After the training process, three supervisors observed these teachers of 2 groups and evaluated the understanding of cognitive perceptions. The data showed that teachers trained through 3D reality simulation model

outperformed the other teachers who were trained through workshop activities. Finally, the study showed that 3D technologies can be beneficial in teaching and learning process.

The sixth article of part 1 is "*Exploring visible mathematics with IMAGINE: Building new mathematical cultures with a powerful computational system"* and written by Ivan Kalas and Andrej Blaho. This study examined IMAGINE that represented Logo's new generation, which aimed to develop problem-solving and logical-thinking skills. Developments at that time added some new techniques and methods to the field and this study focused on them by trying making use of IMAGINE. The study also offered a collection of popular visible math activities, techniques and methods of IMAGINE and then started telling the advantages of IMAGINE regarding the other techniques such as Delphi and Visual Basic stating that "*IMAGINE offers many modern programming features such as parallel processes, objects, events, communication through Internet, multimedia"*. Finally, the study stated that it aimed to encourage teachers and developers to make use of visible educational materials.

Part 1, seventh article is "*Cooperative networks enable shared knowledge Rapid dissemination of innovative ideas and digital culture"* by Kate Crawford. This study discussed Learning and Innovation through Theoretical Considerations, Learning and Technology Exchanges, Applications of Networked Learning to Support Technical Innovation by focusing on two projects. The study investigated the digital culture and ICT through cooperative networks. Regarding all these subtitles and projects, the study briefly stated that using ICT systems in education led us have the potential to design new learning environments, contexts and innovative activities for learning and networked learning, which had an important economic value, consisted of businessmen, scientists, students and teachers and it was developed with the aim of enabling advanced learning in innovation. Three findings of the study were that younger people of the community had a better understanding of knowledge building in a digital culture; teachers had a vital contribution to the process because they made use of their experiences and expertise to foster learning and knowledge

exchange; authentic cooperation necessitated that members of the community, all of them, should get new roles and reconsider traditional patterns of behavior.

The article by Kate Crawford was the final article of part 1 "Learning". The book goes on discussing ICT for early and elementary education with "Teaching", part 2. This part includes four articles, and they will regard and discuss the issue from the perspective of "teaching".

Part 2: Teaching

"Teaching" part starts with the article *"Developing an ICT capability for learning"* written by Steve Kennewell. The study investigated ICT use at home and school; differences between them; advantages and disadvantages of these formal and informal settings to enhance the capability in using ICT in learning through the subtitles of Influence of ICT on Learning, Features of the Home Setting, Features of the School Setting and Goals and the Monitoring of Progress and finally reached a conclusion. As a topic sentence, it was stated that it depended on students' capability in ICT that how effective they could benefit from ICT which provided interactivity and provisionality in learning. The study examined the learning environments of students benefiting from ICT at home and at school and discussed them in terms of constraints, affordances and abilities. For instance, ICT at home offered some constraints such as location of resources and preparation when it was compared to the school; however, it also offered a vital advantage; students regarded it as a pleasant activity rather than homework or an assignment. Schools also had some constraints; students may not be familiar with the software used there and couldn't make use of it effectively; but, it also offered an important advantage which students couldn't have at home that students could have the chance to get professional help from their teachers at the school. Moreover, the aims were decided by learners at home while the aims were decided by teachers at school, which was a major difference. When all these were taken into account, the study finally advised that there should be coordination between the ICT activities done at home and at school as far as possible, which would make the learning in informal setting more effective.

The second article of "Teaching" part is *"Separated by a common technology? Factors affecting lCT -related activity in home and school"* by David Benzie. The study focused on the relationship between ICT and different contexts; particularly school and home through some subsections *"The Development of It Capability: An Example of Activity In Multiple Contexts"* and *"Ict and Home-School Links: Some Suggestions"*. Since the computers were really common at homes of students and at schools at that time; a potential was appeared to link these formal and informal settings through technology. ICT made it possible to set links between home and school through some ICT related activities. But the study stated that while benefiting from ICT to link these settings through some activities; the factors such as different settings, identity of a learner, the manner resulting from "Power", "Motivation" and "Legitimacy" and affecting students' engagements should also be taken into account. The study finally stated that when we achieved to set home-school links, we could liberate the students.

The next article in "Teaching" part is *"The interaction between primary teachers' perceptions of lCT and their pedagogy"* by Avril M. Loveless. The article investigated the issue by discussing *"Social and cultural contexts"* and evaluating *"Perspectives on ICT capability"*, *"Teachers' perceptions and beliefs about ICT"* and *"Models of professional knowledge"*, which were some of subsections of the study. To collect the data, case study approach was applied and interviews were conducted to find out the perceptions and pedagogy of teachers at a school in England and the study lasted for 18 months, which were really long and enough to observe the situation and collect data. Beside the interviews, the study also benefited from observations, narrative descriptions and written materials. The paper aimed to examine teachers' perceptions of ICT and it was found out that their perceptions were affected by cultural, social facts and their identities and as a conclusion, it underlined that teachers should be encouraged to enhance their awareness of ambiguities and various perspectives to define ICT. The study can be regarded as an insight to professional development with ICT in elementary schools.

The fourth article of chapter 2 "teaching" is "*Capacity building in tele-houses A model for tele-mentoring*" by Marta Turcsanyi-Szabo which focused on building a tele-house pilot project to serve learning communities in Hungary. It aimed to have contribution to the development of distance education to support some under-developed regions there. In this study, two web-based material collections were prepared, which were designed to make different learning approaches to appear in the scope of constructivist approach. The students were provided with self-paced discovery learning and project-based group learning with collaboration thanks to the components "The NETlogo" and "Creative Communications". The project was lasted for 6 months and the data was collected from 70 children in five tele-houses and 150 children in 11 tele-houses. Beside that, data was collected from elementary and secondary schools where the materials were used in a free way by teachers; separate descriptions were gathered by distant mentors and local helpers about the local situation; pre-written and post-written questionnaires were applied to see the participants attitudes, perceptions about the role of ICT and computer use; an IQ test was used to assess students' abilities of visual, logical and problem solving and a portfolio analysis of each learners' submitted works provided information and data for the research. The study found out that tele-houses and these web-based learning materials helped children living in under-developed areas to master basic ICT skills and basics of distant education. They turned to be aware of the opportunities which were waiting for them in terms of ICT and technology. Besides, student-teachers also learned about the tools and different methods; how to motivate; evaluate the students; and how to use ICT in everyday life.

Part 3: Policy

The book discussed the ICT in the scope of "Learning" and "Teaching" in the first 2 parts and finally it focused on "Policy". This part included five articles each focusing on some different factors and situations in ICT.

The first article in this chapter is *"ICT for rural education: a developing country perspective"* written by Pedro Hepp and Emesto Lava. This study actually focused on the Chilean government educational reform and took the constraints of this reform, which aimed to integrate ICT with the education system completely. Through taking implementation constraints into account in rural areas, the research tried to offer a special ICT policy for these rural schools because they had some disadvantages; their location, their size; the schools were very small and different grades shared the same classroom. To define a new ICT policy there, a long-term teacher training program was applied; a local support organization was established to support the development of new strategies and thirdly; the hardware and software infrastructure and internet access were analyzed and finally; local community involvement in the activities of school was included in the policy. After this process, it was seen that training of teachers should include a technical training to deal with some problems and issues related to the software and hardware; different grades sharing the same classroom also could learn more and this learning process could be fostered by working together thanks to the facilities of ICT.

The next article in the chapter is *"National plans and local challenges: Preparing for lifelong learning in a digital society"* by Sindre Rosvik. It was a case study of a Norwegian primary school actually, which is similar to the previous research in this chapter, it focused on the ICT integration in Norway and the constraints there. The study investigated the challenges teachers and students faced when the curriculum was followed to apply ICT. The national curriculum explained what to and how to achieve goals in learning and teaching process but the actual practice was applied by teachers and for sure there was a gap because of the problems experienced in this integration process. The main aims of the curriculum were "learning to learn" and "lifelong learning" which were regarded as the main tasks. The study examined the program of a lower primary school; students' ages ranged from 6 to 10. After the investigation, there were some main findings. Firstly, it was seen that children started taking responsibility in learning for their own learning process and teachers' roles turned to be more facilitator and guider. Secondly, the main focus of this

integration process was on the interaction between the computer and children, not the computer itself. Thirdly, it was found out that because of the limitations in access to the internet and ICT facilities, teachers tended to use traditional workbooks and activities more than the internet and ICT tools.

The third study in the "Policy" chapter is *"Learning online: E-learning and the domestic market in the UK"* is made by Margaret Scanlon and David Buckingham. This study actually simply focused on the new era from the eyes of computers and the internet and discussed the potential advantages and disadvantages regarding the domestic market in the UK. It was known that the internet offered a vital educational resource for learners because they had a natural enthusiasm towards computers, the internet and the new media. It was also foreseen that children would access information via the internet years later, which is apparently today, and he Department for Education and Science decided to connect all the schools to the internet. It also discussed a digital curriculum while focusing on the conflict between public and private sectors. Briefly, the growing e-learning industry was examined in some aspects and tried to reach some conclusions regarding the domestic features of the UK.

The next study is *"Glimpses of educational transformation Making choices at a turning point"* by Bridget S. Somekh. This study focused on a specific time period "1998-2002" to investigate the evaluations of implementations of ICT policies in the schools in England and discussed the issue regarding these previous evaluations under the subtitles of government let-oriented initiatives, the impact of ICT on education, conflicting policy initiatives and the need for radical change. Taking all these evaluations into account, the study found out that children acquired advanced skills and used ICT in innovative ways; they also turned to be aware of the role of ICT in today's world and learned possible ways to benefit from it. However, the paper concluded that a radical approach to structure the education system is needed.

The final study of "Policy" chapter is *"How do we know that let has an impact on children's learning?: A review of techniques and methods to measure changes in pupils'*

learning promoted by the use of ICT" by Margaret J. Cox. This study dealt with the previous studies in the field and investigated the methods, objectives, limitations and practices of them; and reached some findings and listed those findings and discussions under the subtitles of Methods of Measuring the Effects on Learning, Learning Objectives, Organization of The Learning. After the reviews of previous studies and discussions, the study aimed to propose how to lead to reliable and generalizable results in an ICT research.

Evaluation

First of all, it should be noted that the book was prepared more than a decade ago, which creates some limitations for the ones who tries to build an ICT literacy because the implementations described in those studies are old-fashioned anymore; in other words, they aren't used much in today's classes in the world. For instance, we do not benefit from CD-Roms that much as it was described in some of the articles; we have lots of new ICT tools and online libraries to use. On the other hand, the book shows us how fast the technology can change; even a book written 14 years ago is seen as an old-fashioned and couldn't be that much as beneficial as expected.

However, the book investigates ICT and research on ICT relatively in a comprehensible sequence and lets us evaluate the issue in terms of teaching, learning and the policy, which are the key components of education system. Thanks to this sequence, we can take the different components and issues into account and evaluate the previous implementations, their limitations and practices. These studies can be used as a guideline for the future practices or they can be used to compare today's ICT tools with the tools used that time to see how fast the ICT tools and facilities changes. Consequently, the book firstly can be regarded as a chance to compare today's practices and opportunities enabled by technology in education with the ones one decade ago and secondly, it can be seen how important it is to read and follow latest books and articles of ICT to keep us, teachers, updated.

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