The Proceedings of the 18th Annual Conference of the European Teacher Education Network

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Liverpool Hope University
Preface

The 18th annual ETEN Conference was hosted by Liverpool Hope University in April 2008. The theme of the conference was “Creativity and Enjoyment in Learning” which was elaborated and discussed from several angles by the keynote speaker and by the participants of the Thematic Interest Groups.

It is our pleasure to note that ETEN is growing continuously. Today, after almost twenty years of its establishment, the network has over 50 member institutions from Europe and North America representing teacher education and social educator training. The most recent members of ETEN are Faculty of Education, Ege University in Turkey and Department of Applied Sciences in Education, University of Helsinki.

In recent years, the ETEN Conferences have been organized around its Thematic Interest Groups, TIGs. Each TIG is co-ordinated by a professional leader(s), who takes responsibility for guiding the work plans, research activities and practices unique to the interest groups. The Thematic Interest Groups make it possible for their members to share their recent thoughts, ideas and innovations concerning teaching and teacher education in today’s Europe. The TIGs also facilitate the building of research and development projects on relevant educational issues.

ETEN’s Conference Proceedings have become a regular feature of the organisation from the 2001 conference at the University of Greenwich. This 18th conference proceedings publication of the network is based on papers that were presented and discussed in the TIG-sessions at the ETEN Conference at Liverpool. These papers report best professional practices, some describe research projects, some focus on educational policy issues and others on collegial collaboration. The TIGs whose papers are included in this publication are:

1. Arts Education
2. Biology
3. Democracy
4. Early Learners
5. Instructional Technology and Learning
6. Mathematics
7. Reflective Education
8. Special Education
9. Urban Education

The papers of this publication will be evaluated by two blind referees in order to be considered for publication in JETEN, the Journal of the European Teacher Education Network.

Finally, we would like to take the opportunity to express our sincere thanks to the previous editors of ETEN publications, Dr. Neil Hall and Mr. Doug Springate from the University of Greenwich, UK. They have done marvellous and exemplary editorial work and advanced the academic profile of the network. We hope to continue this tradition also in our work as co-editors of ETEN publications.

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Arts Education
In order to promote cultural awareness, educators seek means to encourage their students to view society through multiple lenses. There must be changes in content, social context, and methods through which cultural values are taught in order to prepare students to be citizens in a global age (Zimmerman, 1990). What better way to realize all of these goals than through something visual, tangible, and universal to all cultures—art (McFee, 2008). The purpose of this paper is to examine programs which are aimed at broadening student world views through artistic exchanges.

Art is a “powerful, pervasive force that helps to shape our attitudes, beliefs, values, and behaviors” (Chalmers, 1999). Acceptance of this definition by art teachers and art students is instrumental in building powerful programs which can develop a sense of cultural pluralism and unity through art. It provides a sense of “meaning of significance or intensity to human life that cannot be gained in any other way.”

Review of the Literature

Banks (1989) stated that art education curricula must move beyond the simple “contributions approach.” No longer should multicultural figures and holidays be just special topics or themes for trivial art-making activities.

A further look at the levels of cultural awareness in education comes from Anderson (1979) who describes changes as moving from “(1) a mono-national context to a multinational context; (2) a monocultural context to a multicultural context; and (3) a school-bound context to a community-involving context.” These changes lead naturally to global education.

McFee (2008) stated that there are five primary functions of art that affect the experiences of people from all cultures. These are:

- Art objectifies in that it is used to make subjective values, emotions, ideas, beliefs, and superstitions more sensuously tangible, so that they can be seen and felt.
- Art enhances and is used to enrich celebration and ritual in human events.
- Art also differentiates and organizes; it confirms ranks and roles, telling people who others are.
- As communication, art is used to record, transmit, and generate meanings, qualities, and ideas.
- Finally, art has a role in cultural continuity and change. It helps to stabilize cultures by perpetuating culture members’ convictions of reality and the identities and accomplishments of individuals and groups.

A student exposed to these art functions will have a broader perspective on “culture, identity, and reality and develop life skills needed for future careers or endeavors.”

McFee (2008) further stated that while the art educator will not know everything about every culture, he or she could focus more on the general importance of art to cultures in general. The art educator serves as a leader who initiates action, focuses students on processes and understands the commonalities of art across cultures.
Yvonne Greene (2004) reported on her experience in developing an art exchange between an elementary school in Slaton, Texas, and an elementary school in Ogaki, Japan. Greene visited the Japanese elementary school on a Fulbright Memorial Fund trip. On her return she maintained contact with the school and personnel in Japan to expand the understanding of her K-4 students’ understanding of “their place within the rich variety of our planet’s human family.” Students exchanged actual art projects to enhance their understanding of culture in each others’ countries.

In an exhibit titled “2006 Dancing Across Cultures,” children’s theatrical costumes and paintings represented traditional cultures from various countries around the world. This exhibit was part of the Presidio Performing Arts Foundation. It was a combination of painting and dance, with both programs providing a sense of world unity and commonality among students (Kiernan, 2008).

Joshee (2008) described infusing arts-based instruction in college level classes to encourage students to engage emotions and imaginations in learning and teaching. Joshee used creativity and imagination as keys which could create a more socially just world. She used a project in which students designed building blocks representing new or revised ideas gained through increased understanding of course content.

While there is a limited amount of research on the use of art as an ingredient in global education, clearly many writers sense the natural role of art in building cultural awareness in students. Author of *The World is Flat*, Tom Friedman, in an interview with Daniel Pink (2008), spoke about the need to integrate art, science, music and literature with the hard sciences. He believes that the leaders in the future world economy will be those who are able to integrate and generalize.

Cummins and Sayers ((1997) proposed that schools rigorously pursue knowledge and insight into cultural and social issues. Students can do this in the context of global learning networks when they have the opportunities. The arts are a natural avenue for networking.

**The Memory Project**

A program which seeks to engage art students in the United States with children from around the world is the Memory Project, developed by Ben Schumaker, from Madison, Wisconsin. Ben had the experience of working as a volunteer at an orphanage in Guatemala. He returned to his own country anxious to find a way to help youngsters build their sense of identity and personal self-worth. Recalling the suggestion of a Guatemalan man who shared that he had spent his developing years in an orphanage and had no personal belongings from his youth, Ben Schumaker envisioned portraiture as a method of providing personal belongings to children as well as providing a meaningful exchange of friendship.

The first year of the project, 2004, there were approximately 500 portraits produced in the United States for children in Guatemala, Mexico, Haiti, and Nepal. In 2006, nearly 8000 portraits were produced. A goal of the project is to have two separate portraits made for each child every year and to make portraits throughout their youth, creating a sense of recorded history and uniqueness for the children. The portraits are seen as a transition from childhood to adulthood by teenagers in the program.

An art teacher in a small rural school in Arkansas became interested in the project as a means of expanding the cultural awareness of his students. The steps he used to connect with the Memory Project are: (1) Visit the website [http://www.thememoryproject.org](http://www.thememoryproject.org). (2) Download a PowerPoint slideshow about the project. (3) Enroll art students in the project; a $15.00 fee per student/portrait covers the cost of the participation completely. (4) Follow specific directions regarding size, media, and protection for the portraits, as well as information about the artist.
The pictures of the young people on the website are digital photographs of children from orphanages around the world. A large number of the pictures are of Latin American children because of Ben Schumaker’s personal experience with that part of the world. When the project has expanded, orphanages from other localities have been added. Schumaker related that although the children live in orphanages, this is not necessarily because they have no parents or family. Often they are there because their families cannot care for them due to extreme poverty. The children literally have no belongings of their own.

As the student artists worked on the portraits chosen by them, the need for authenticity caused the artists to research the cultural and physical aspects of their subject’s world. Student artists reported that they felt a strong connection to the children in the portraits. When the portraits are ready to send to the children, the artist may choose to write a letter to their subject. When the pictures are given to the children, they usually respond with some sort of thank-you letter. In the written messages to and from the children, the young artists were able to experience a feeling of connectivity with the various cultures.

The completed portraits are delivered personally to the students. Digital photos of the children receiving their portraits are sent to the artists. Once the connections are established, the opportunity exists for further exchanges with the orphanages and the children. For example, the class or the school involved in making the portraits may desire to purchase items for the orphanage where the children live. The project also has the possibility of increasing cultural awareness within the community where the young artists live. Press releases and local publicity all serve to engage area residents in understanding the commonalities of children everywhere, as well as respect for various cultures.

Conclusions

“Art teachers cannot be expected to have in-depth knowledge about the many different cultures in their communities; to be knowledgeable about all cultures throughout the United States and the entire globe is virtually impossible” (Zimmerman, 1990). What is called for are practical programs, affordable and available, in the hands of concerned leaders. Perhaps the Memory Project is an example of such a program.

The 2006 Dancing Across Cultures project described earlier could be another avenue to pursue. Vivian Komando (2008) describes a project using self-portraits which use cultural symbols or symbols of the future wishes of young artists called Portraits of Peace. The portraits are exchanged digitally and through e-mail with other young artists around the globe.

“Art in itself is very diverse and unique, but common in its themes relating to society, culture, and identity” (McFee, 2008). Students can learn to appreciate other cultures and enhance their own talent by use of hands-on activities, discussion, and writing. Any program, which increases cultural awareness while also building on the individual talents and skills of the artists involved, deserves interest. Chalmers (1987) said “art is a means through which we can reach out to others for mutuality; it is a means of communion as well as communication.”

References


Creativity and Enjoyment

Jildou Zandstra
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TWO QUESTIONS:

1. How creativity and enjoyment can contribute to the success of children’s learning?
2. How creativity and enjoyment can contribute to sharing a passion for learning and education?

A. INTRO

- Professional visual artist (installation art);
- Coordinator Arts Education;
- ‘New’ subject on primary schools (2007);
- Teaching the teachers

  - Create and develop vision on Arts Education;
  - Create and develop modules on Arts Education;
  - Guard and organize modules;
  - Teach Arts tutors;
  - Intern communication: school management team, Arts tutors
  - Extern communication: Partners in Arts (18 now), primary schools, department;
  - Organize meetings on Arts Education with Partners in Arts: dialogue and development, structural partnership
  - Create authentic teachers and coordinators in Arts Education, that can inspire the children

Partners in Arts:

17th of October 2007 we signed a convenant with 14 Arts Education Partners in Rotterdam. 14 cultural/Arts institutes: Visual Arts, Architecture, Photography, Theatre, Music, Dance, New Media

- Individual Artists: visual artists (of all kind), choreographers, dancers, theatre makers, actors, musicians, dj’s, architects, etc.;
- Arts ‘Institutes’ and their educational services: museums, theatres, podia: film, dance, music,…;

  - Create and develop vision on Arts Education (for pabo and primary school);
  - Dialogue modules on Arts Education students pabo1, 2,3 and 4;
  - Develop special programm (workshop, guidance, walking) for students;
  - Guidance and supervision students;
  - Projects on Arts Education in the city: students, schools, Art Institute(s).

So we created our own Arts Education from a self-developed vision and believe and in narrow cooperation with the Partners in Arts (Centre for Visual Arts Rotterdam!)

From the department we get a lot of freedom (or maybe we just took it?) to develop. For us it is one big pool of experiment!
Vision, believe, dialogue, respect, experiment and dynamics
Dare to fail, and learn to ask the right questions
The power of imagination
Mutual quest for the magic moment

B. WHAT HAPPENED?

VISION:

Why Arts Education? = Basics for policy!

- As a school you need have to develop a vision on Arts Education and implement this in the policy of the school;
- The question Why Arts Education? is very important in making your choices in policy;

Vision, believe and conviction

- Developed vision in cooperation with Centre for Visual Arts Rotterdam: 'Ruimte voor verwondering en verbeelding', E. Alberts en T. de Vos;
- Develop vision and programs in dialogue with partners;
- What do we want from Arts Education?;
- What do we expect from our students, the primary schools, the artists and ourselves?

Conviction:

- Within Arts the POWER OF IMAGINATION AND EXPRESSION is central theme;
- All arts;
- Amazement, WOW, Surprise, wondering;
- CONFRONTATION, DIALOGUE and MEETING the artists and arts;
- PERSONAL CONCEPT: relationship to personal interests and passions, future world of work.
- Strong relationship between teachers and artists in passion;
- As a teacher you are your own instrument.

So:

- We chose for working with Contemporary Arts: Confrontation with the artists;
- Rotterdam is a dynamic, multicultural en artistic city;
- Wide offer: we want our students to meet all kinds of artists and Arts: Visual arts, dance, music, architecture, theatre, film, poetry, …
- Intense and durable cooperation with Arts Partners: respect
- Dialogue with schools, artists and students.

Why Arts Education?

- The development of the imagination and expression is important;
- Learning ‘another way of thinking’: not giving the good answer, but asking the good question;
- Learning to express your feelings and ideas;
- Learning to watch, listen and experience/feel;
- Learning to open yourself to ideas and expressions of others (RESPECT);
- Learning to reflect and to discuss;
- Recognition and acknowledgement of yourself and the other!

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1 *Order: 'Ruimte voor verwondering en verbeelding', E. Alberts & T. de Vos
1. Centrum Beeldende Kunst Rotterdam
2. www. Cultuurplein.nl
MODULES:

- We created an educational route of 3 years ending in a Minor;
- We train our students to passionate, active and contently good teachers (Arts Coordinators);
- Confrontation, dialogue and cooperation with arts and artists (cultural environment of the school), inside out – outside in, open-minded;
- Create durable relationships with ‘arts world’;
- Develop your own vision, learn how to design an Arts project, see the possibilities, communicate and cooperate.
- Power of imagination and expression, the wondering, dialogue and confrontation, all Arts, reception and reflection, personal concept

Module I: Kunst in Kaart, 6 weeks, 3 hours
- Personal development of student central theme;
- Making a ‘Map of Arts’: in own head and of Rotterdam;
- Confrontations, dialogue with makers;
- 6 experiences, 6 tasks;
- Widen views, recognition and acknowledgement;
- To adjust opinions and prejudices;
- Start making personal portfolio;
- Presentation.

Module II: Kunst naar Keuze, 6 weeks, 1,5 hours
- Develop educational program for or at cultural activity (exhibition, film, concert, theatre, dance, architecture, art in the public space, …);
- Narrow cooperation with arts institutes and artists/ dialogue: mutual drives/passions;
- Quest for the ‘magic moment’ and “What kind of teacher do I want to be?”;
- All Arts represented;
- Work at and for institutes;
- ‘Experiment’ with schools and children;
- Presentation.

Module III: Kunst met Kinderen, 6 weeks, 1,5 hours + work experience period
- Design and deliver Arts Education project on school, trainee post;
- Using cultural surroundings/ possibilities of the school: Artists, institutes;
- Using possibilities in school: profile teachers, parents, etc.;
- Develop own vision on Arts Education;
- Reflection and reception;
- Considering all Arts.

Minor: Kunst in de Klas
- Arts coordinator
- Design and deliver Arts Education project:
- Two work experience places: Arts Institute and Trainee post/ pabo
- Assignment from Arts Institute
- Assignment from pabo/ Trainee Post

How creativity and enjoyment can contribute to the success of children’s learning;

- A passionate teacher is the beginning!
- The creativity and the enjoyment must be with the teacher, the children will follow;
• Surprise, confrontation and personal concept;
• As a teacher, experience the world as a playground: have an exciting journey in arts with the children;
• Be open-minded and cooperate with artists.
• Adjudge children the arts, the passion for expressing.

How creativity and enjoyment can contribute to sharing a passion for learning and education?

• Meeting the professionals;
• Confrontation and dialogue; get out of that school and look around!
• Don’t only read about it, experience.
• Strong relationship between a teacher and a pupil.
• Surprise yourself and the other.

CONDITIONS

Primary School Teacher Training College:
• Management must be cooperative;
• Implement Arts Education in policy of school;
• Develop vision and carry and mission this with whole staff;
• Create good staff of Arts Tutors;
• Arts must be as important as other subjects;
• Good facilities: classes, studios, materials, and devices;
• Logistically, timing and programs.

Arts Partners:
• Platform on Arts Education, contently discussions and development of vision;
• To organize relevant and unique Arts confrontations;
• All Arts confrontations must be well organized;
• The first confrontation/ experience is very important, must be a good or impressive one;
• Wondering;
• Students must feel welcome;
• Guidance and supervision students;
• Dialogue and openness;
• Mutual respect and confidence.

ALL YOU NEED IS LOVE?!

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Opening Eyes Through the HEARTS project

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Abstract
This paper presents the development of an arts based project at the University of Greenwich during the first part of the academic year 2007–2008. As the project continues to unfold, the tensions in the education system, expectations of training teachers and schools become clearer.

Introduction

‘Creative activity involves playing with ideas and trying out new possibilities. But creative achievement does not always require freedom from constraints or a blank page. Great work often comes from working within formal constraints.....’

Robinson, 2001:133

The Higher Education, the Arts and Schools (HEARTS) project was set up in the UK as a national funded opportunity for alternative exploration of the way(s) that student primary teachers could be trained in the arts – largely due to concerns which had been raised by Rogers (1998 and 2003). The funding came from a number of charitable organisations including the Esmée Fairbairn Foundation. The stated purposes of the project were:

• To revitalise the place of the arts in the experience of people practising in Higher Education to become primary teachers
• To prompt more general questions about teacher education – and perhaps to put some colour back in the cheeks of a system which, for many who worked in it, had become drawn and pallid

Newby in Downing, Lamont and Newby 2007:vii

In the first phase of the national HEARTS project, three universities took part, followed by another three the following year. In the last phase, the University of Greenwich was able to join with four others and devise their own local projects.

This paper sets out some of the aspects of the Greenwich experience of HEARTS. The project has been led by two university tutors – myself (teaching visual Art) and a colleague (teaching drama and poetry as part of the English course).

The Context

The three year undergraduate teacher training programme at Greenwich has been very largely a discrete subject based degree – where student teachers would follow a series of classes in mathematics, science etc. Students could also choose a Subject Study with some classes in each year. The subjects offered include (visual) Art and English. As part of the Subject Study, students in their final year undertake a 7,000 word School Based Research Project.

In 2007 an internal review of the degree programme was announced. This provided us with an important opportunity to consider the way arts were taught.
Aims of the Greenwich HEARTS project

We chose to focus on three main aims:

- To develop the concept of the artist-teacher through experiential involvement in arts practice
- To develop a culture of enquiry into the role of the arts in learning
- To explore alternative structures and opportunities for training students

In order to meet these, we defined the principles by which we would work:

Firstly, the project would be cross curricular and incorporate any curriculum subject areas. We decided to use the existing course structures (including assessments) as we felt that there was a better chance of success if the students could see the ‘normal’ course structure. The HEARTS project therefore was open to all the Art and English students—about fifty five in total.

We felt it was vitally important that students were able to operate a choice as to whether to be involved or not. We held several meetings to present the opportunities to all the eligible students and emphasised the need to invest in the choice rather than being able to simply follow a predetermined course pattern. In these meetings (and repeated many times during the year), the tutors involved also expressed their own uncertainty: HEARTS was not like the standard courses and we did not know exactly what would happen as the project sessions and activities developed. This also allowed us to present the principle that ALL participants are learners and that tutors were to take part on an equal basis with the students.

The Greenwich HEARTS project was designed to facilitate students and school children (and their teachers) working with artists from visual and language arts backgrounds—both in schools and in the university. In order to select arts sympathetic schools, we decided to limit the project to working with only schools already holding an Artsmark Award (a UK government sponsored award which schools may choose to apply for). This ensured we did not have to educate or persuade the schools about the importance of the arts before the students could start the project.

We also emphasised the importance of working in partnerships with other organisations – including a local network of educational and arts workers and local venues. This included considering several campuses of the University of Greenwich which are historically and culturally rich.

From small beginnings

The tutors were dispirited when only five students applied to join the project. We considered whether we should continue or not and were heartened when colleagues from another university pointed out that they had only been able to recruit ten percent of the eligible student group as part of their HEARTS project.

From this small and intensive group a project grew with one particular school in SE London. Students visited the school and were very surprised by what they saw there. They all commented on the emphasis put on the arts, the forms and scale of work on display as well as the enthusiasm of the Head teacher and staff. In the school building, the top floor had a hall which had been carpeted and used as an exhibition space for pupils’ artwork.

The identification of the times for the project, the artists to work with and opportunities all posed some challenge. The allocation of the project funding was made with little notice so planning time was short. Despite this, we worked with a community artist who visited the university and at the school, with students and school children. After several workshop and seminar sessions together, we planned for an intensive programme in a week in December.
This programme involved children visiting the university campuses. On one, pupils aged eleven visited buildings designed by Sir Christopher Wren in 1695. They drew parts of the Painted Hall which depicts many British naval scenes of the past. They also attended a music recital in the Chapel. On another site, seven year old pupils visited a ‘jungle’. This was related to work on Rouseau’s painting ‘Surprise!’ The ‘jungle’ they visited was actually a Winter Garden attached to the university buildings but the excitement they experienced was as real as a tropical jungle! They also worked in the university art rooms and produced tree decorations to adorn the trees around the campus. It so happened that the week we organised these visits coincided with an external inspection of the university. The inspectors were only concerned with certain subjects within the teacher training programme and the strain on the university administrators was already acute. As a result, we decided to ‘play down’ the children’s visits: not an easy task with ninety excited children! The week culminated with a sharing time in the school in which adults and children shared their experiences, work and learning together.

Collecting data

The Greenwich HEARTS project has been intensive from the beginning. Working with a small number of students and tutors has meant that we have got to know each other well. In order to collect data during the project, we have undertaken surveys (with those students who chose not to participate as well as those who did) as well as holding individual interviews and group discussions besides taking many photographs. The participating students have kept detailed reflective journals, produced pictures and poetry. (The dissertations will also reflect the HEARTS project but have not yet been completed.) This data rich project has not been fully analysed: what is presented in this paper is only an outline.

What have we learnt?

From students?

We noted a strong fear of failure and a reluctance to explore new possibilities. The students who opted not to take part articulated their concern that so many uncertainties might adversely affect their academic grades. A rigid approach to learning (and major fixations about assessment and assignments) restricted the opportunities the students could embrace.

We also noted that in general language arts were misunderstood. Most students were not sure what they were and revealed a worrying belief that ‘English’ as a subject was primarily concerned with structural form rather than an expressive opportunity.

By contrast those who participated appeared to be more open ‘risk takers’ who learn from experiences. In discussions and interviews they frequently referred to earlier experiences gained in the previous year of their studies when they were able to travel abroad to Europe for a short term Exchange programme. This seemed to be an important part of their previous learning which gave them strength and impetus to explore further—suggested as important traits for developing creativity by Shallcross (1981; cited in Craft, 2000). The students also commented on the lack of encouragement or preparation from other university experiences. The expectations of other university courses seemed predictable and did not underline the need to take risks in learning. Robinson (2001) indicated the need to ‘play and take risks’ in order to be creative: perhaps this is an element we have overlooked in training teachers?

In reflecting on the project all participants commented on the importance of seeing for themselves. The visits to the school, art exhibition and Winter Garden all made lasting impressions on the students. We reflected how rarely students have the opportunity to ‘see’ together as a group experience. In contrast, we recognised how limited their experiences of teaching in schools had been. Although they had completed two teaching practice placements by the time of the project, the students had been in different schools to each other and the opportunities for reflecting on what they had seen and gaining a shared understanding
were minimal. The connections between subjects and associations made in learning had frequently been missed as they had focussed on planning and teaching discrete subject based lessons. This had earlier been identified as a potential concern by a government commissioned committee (NACCCE, 1999).

The extent to which they got to know one another was a major influence on their development. Although they had been studying Art or English together for two years, they had not previously developed friendships or shared understanding. The HEARTS project had facilitated this in several ways. One which had not been clearly recognised until much later was the importance of eating and drinking together. Fruit juices were available in all the workshops and seminar sessions in order to provide a contrast with ordinary classes and allow a more relaxed ethos and ensure ‘a lack of feeling of being threatened’ (Shallcross, 1981 cited in Craft, 2000:13).

**From the artists?**

It was particularly noticeable that the artists’ mindset was very different to that of teachers (and in turn that the students were more familiar with). The main focus expressed by the community artist for example was related to the development of the creative processes available to the students and children. The students by sharp contrast often seemed more concerned with gathering tips for ‘good lessons to teach’. This led to frustrations and more exploratory work in order to expose the underlying beliefs and attitudes (as suggested by Apps, 2003). From this work the crucial importance for more opportunities for teachers (whether qualified or still in training) to be able to reflect on practice and expectations was underlined.

Due to time period spent in the school, we had to work around the curriculum structure and the organisation of the school day in the midst of Christmas preparations. This was regrettable but indicated the underlying tensions experienced by class teachers as they attempted to ‘fit everything in’. This invariably caused the project some difficulties. The community artist felt increasingly frustrated as times were changed in order to accommodate Literacy lessons and production rehearsals. Interestingly, the student teachers seemed more adaptable to this—perhaps because it was a familiar feature of their own placements in schools. The implicit hierarchy of school subjects and the effect on art teaching has also been noted previously (NACCCE, 1999; Gregory, 2005).

**Ourselves?**

The first important learning point which the tutors reflected on was the need to have fun through a different set of constraints (Robinson, 2001). Much of the day by day teaching we engaged in was not fun, even though we enjoyed the subjects we taught. In HEARTS we often laughed out loud. The first time this happened in one of the earlier practical workshop sessions, the students commented on it as being unusual: the tutor concerned was working in isolation, drawing a representation of a good teacher and laughing—not at their work, but rather because of the sheer pleasure of undertaking the task.

Throughout the project the issue of uncertainty was acknowledged. The tutors had felt more comfortable with this principle than the students, but we realised the need to move beyond this and actually enjoy it! Through moments of uncertainty we discovered the opportunities to prompt and expose learning for ourselves, students and children. This led naturally to the trying of new things and the modelling of risk taking as noted by Robinson (2001).

As participants we also had to learn to work together. Most of our normal teaching involved taking our classes by ourselves. Through the activities we were faced with the need to cooperate and collaborate with each other as well as with our fellow participants – whatever their age.

As a consequence of the above, we also began to look for more opportunities to work together, hosting other activities and pursuing involvement in other projects.
Beyond the project?

What benefits have been identified during the course of the HEARTS project? Firstly, from the students, ‘opened eyes’ to see new possibilities and increased confidence to take risks. We would argue that these are better prepared teachers than we have developed through more ‘traditional’ routes. Might our wisdom be what Gardner (2008) refers to as ‘advanced creativity’?

The review of the degree has allowed some elements of the HEARTS project to be incorporated into the new degree which will begin in September 2008. An optional course on the ‘Arts in Education’ has been defined and includes most of our original principles. These also reflect a commitment to ensuring the group of participants visit a school and undertake workshop activities there together and supporting all age learning.

Lastly, due to the enthusiasm of those involved, we have sought to introduce groups of students to each other. An example of this was when HEARTS students met with second year students who had participated in a ten day EU funded Intensive Programme hosted in Belgium. From the discussions between them, there were several points of commonality and new ideas have been spawned about working together in schools. Although this continues the theme of the creative processes revealed in the relationship between knowing and feeling (Robinson, 2001), it is best told at another time!

Conclusion

Overall the HEARTS project so far, has been very successful as well as providing thoroughly enjoyable experiences for everyone involved. The notion of ‘play and possibilities’ defined by Craft (2000) has allowed the important and timely opportunity to reconsider the basis for learning and development. However the HEARTS project is not yet over and it may also yet be extended in another form for another academic year. Hopefully even more eyes will then be opened through the HEARTS project.

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Abstract

This discussion paper raises some important questions about the nature of research, our beliefs about children and the opportunities offered to them in using art. It outlines the development of projects which have focused on children as researchers and links the principles used to the idea of art as research. It is intended to raise questions rather than seek to provide full answers.

The author would be very pleased to discuss any of the topics in this paper.

Introduction

Resulting from Mary Kellet's earlier work to develop children as researchers in their own right (Kellet, 2005), The Children's Research Centre (CRC) was founded and based at the Open University. The CRC aims to 'empower children and young people as active researchers' (Springate, 2005). The studies that children have engaged in are similar in topics of interest to those of adult researchers but as they are undertaken by children they benefit from genuine enquiry rather than clouded by issues of authority and power as identified by Mandell (1991) and James and Prout (1997). This is a parallel situation of that argued by others—for example, feminists who claim that the best researchers of women and the issues affecting them are other women (Letherby, 2003). Examples of children’s research and their papers can be found at the CRC’s website.

This paper therefore starts with the assumption that children can indeed be trained to undertake their own research.

In 2006 a European Comenius project was created to investigate children as researchers in primary schools (CARIPSIE). The seven countries represented are:

- UK: University of Greenwich and Northumbria University
- Norway: Hogskolen I Bergen
- Sweden: Malmoe Universitet
- Turkey: Hacettepe University
- Belgium: KATHO
- Lithuania: Siauliai University
- Latvia: Daugavpils University

Each institution is working with local schools and exploring different aspects of the research process. The intention is to hold an In-Service course for European teachers at Greenwich in 2009. CARIPSIE has four published aims:

- to explore, compare and identify the best ways to teach young children of all abilities in primary and pre schools the skills they need to become active researchers
- to consider how this can be embedded in the curriculum
• to encourage comparative research topics so that children from the seven project countries can learn from each other
• to empower children who will contribute to existing knowledge providing adults who work professionally with them new insight into the children’s own perspectives

In 2007, a school based Comenius project was established by some of the schools working with the Higher Education institutions. The Children As Researchers (CAR) project is currently working on a complementary programme of research topics.

What is meant by ‘research’?

This question has vexed members of both the European projects. Together we have recognised the links with the investigative exploration of the world by young children and teacher led topic based work in schools. We have also recognised that the adult notion of academic research changes at degree levels—whether Undergraduate, Masters or Doctoral studies. In order to speed the discussion here, I will use the aspects identified by Kellet (2005). Research can be said to encompass:

• The formulation of a research question—possibly testable hypotheses
• A methodological design
• The collection of raw data
• An in-depth analysis
• Open for scrutiny of validity
• The generation of new knowledge

In order to undertake this kind of research, ‘the expert researcher(s)’ (Kellet, 2005) must show three attributes:

• Ethical: their research must not harm the people involved
• Sceptical: researchers need to question everything they find out
• Systematic: researchers need to research in a sensible step-by-step way

This all has implications for the teacher (or other adult working with the children) in terms of ‘getting the balance right’. On the one hand, the children involved need support whilst on the other, because the adults usually hold significant power, issues of management (influencing, limiting, judging or hijacking) need to be acknowledged and minimised (Kellet, 2005).

Children of various ages have already been trained to use many research methods: questionnaires, interviews, observation, and the use of pictures. The latter is of interest because it appears to naturally link to art work. On closer inspection however, this aspect is essentially a pictorial representation technique, rather than the use of art as a methodology in its own right.

Thinking about art—and some questions and issues to discuss

The research literature is increasingly acknowledging art as a form of research methodology (La Pierre and Zimmerman, 1997; McNiff, 1998; Eisner and Day, 2004; Sullivan, 2005; Barone, 2006; Eisner, 2006; Irwin, Beer, Springgay, Grauer, Xiong and Bickel, 2006; Baxter, Lopez, Serig and Sullivan, 2008; Cahnmann-Taylor and Siegesmund, 2008).

Sullivan (2006) asks whether visual arts practice can be argued to be a form of research? He answers this question in both positive and powerful terms, but acknowledges that there are different terms used to describe the development of art as research: ‘arts-based research’ (Barone and Eisner, 1997; Eisner
1993), ‘arts-informed research’ (Cole, Neilson, Knowles and Luciani, 2004), ‘A/r/t/ography’ (Irwin and de Cosson, 2004) and ‘practice-based research’ (Candlin, 2000; Frayling, 1997). In order to explain this range, Sullivan reflects on the development of research by art educators:

‘[they] have been exploring these research approaches as the arts disciplines try to claim a foothold in an information-based economy of educational rhetoric. [but they] learned long ago that efforts to isolate human behaviour into discrete, observable chunks did not capture the complexity of what it is to come to know something…...

[they] responded to changing demands and the search for more adequate methods…in approaches which are being applied at the level of schooling, where research investigates learning in classrooms and represents it in all its artistic complexity, and in higher education….’

Sullivan, 2006:20

On investigation, the various terms identified as already in use, focus on adult researchers. As already noted (Springate, 2005) children ‘are doing legitimate research … asking their own questions…..improving their self-confidence and showing they have something worthwhile to contribute to our understanding of the world….’ It is the central aspect of developing understanding (whether theirs or ours) which is particularly interesting and reminiscent of other commentators’ views on the development of children’s artwork in general (Lowenfeld, 1947; Kindler, 1997). But it also is linked to the experience of adults:

‘Art provides canonical images that organise our world…..sometimes these images are so powerful that we find it difficult to see the world they address in any other way: art not only imitates life, life often imitates art….’

Eisner, 2006:15

The questions forming in my mind are now not whether children can use art as an effective research methodology but rather when and how?

Eisner (2008) identified some persistent tensions in arts based research and highlighted aspects to note:

- **Dilemma**: either to work imaginatively or produce work which does not communicate?
- **Particular and general**: illuminating distinctive features AND developing observations and insights extending beyond
- **Tension of desires**: aesthetic work product or degree of truthfulness?
- **Generating puzzles**: raise fresh questions

I believe these tensions remain important for children and adult researchers alike in this field. Exactly what would children ‘see’ in their research if they were encouraged to use art as a research tool? Would we recognise the world that they described? Or would we like what they tell us? The CARIPSIE and CAR projects could both provide the vehicle for such forms of exploration.

**Final Thoughts**

Sullivan (2005) identifies the ‘need to dispel myths’ and harness the power of the arts to develop robust research ‘using credible evidence, convincing argument, insightful practice, valid theory and powerful art’. The aim of this paper was to provoke discussion and consideration of children as researchers doing these very things.

Over the next year, I intend working closely with an artist (who is not a qualified teacher) who works in one of the schools linked with the CARIPSIE project. Together we want to explore ways in which
children can be empowered to use art as a research tool and present our findings, recognising the truth of these quotes:

‘Grown-ups never understand anything by themselves, and it is tiresome for children to be always and forever explaining things to them’

Antoine de Saint Exupery, 1945 (in Springate, 2005)

‘Why do we do art?
• To further our concentration and skills of imagination. And make us look more closely into things
• It also teaches us to put ideas or things around us into a new physical form
• We also do art to further our creative ideas and understanding of the world’

12 year old pupil responding to the teacher’s question (in Hickman, 2005:149) Emphasis in bold added by the author

References


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Evaluating Science Education Reform in Turkey:  
4th Grade Students Image of Science Teaching  

Dr. Hulya Yilmaz, Dr. Hakan Turkmen, & Dr. Jon E. Pedersen

ABSTRACT

Our study was intended to provide a view of the new Turkish science and technology curriculum through “different eyes” (those of the children) in order to characterize the nature of the reform. The purpose of this study was to investigate fourth grade students’ image of current science teaching by using a Draw-A-Science-Teacher-Test Checklist (DASTT-C). For Turkey, this research is first and both quantitative and qualitative in design. Total checklist scores can range from 0 to 13. Scores are grouped into three ranges on a continuum, with scores of 0–4 representative of student-centered teaching style, 9–13 representative of teacher-centered teaching style, and 5–8 representative of neither student-centered nor teacher-centered teaching style. The results would then be used to evaluate and reconstruct the science curriculum.

Fifty-five (female: 34, male: 21) fourth grade students from three different primary schools participated in this study. Many students depicted activity-oriented (hands-on) and technology integrated science learning environments based in a laboratory setting. Science topics or concepts were selected from chemistry more often than other science content areas. Most of the teachers were smiling and female. Interestingly, outdoor learning environments, individual learning environments, crest-shaped desk arrangements, dramas, lab safety, facial-haired male teachers, and science exhibitions by students were not seen or rarely drawn.

The results of study showed that the most of students (56.47%) represented their science classrooms with elements of both student-centered and teacher-centered environments, such as students actively engaged in the activities; teachers were most often placed in leading positions in front of the class controlling the science experiment. Less than 20% of Turkish elementary 4th grade students’ view their science classrooms as student-centered.

For the students’ narratives (qualitative), we noted that students expressed scientific expectations about learning and teaching elementary science along seven themes: (1) expectations about making science interesting or enjoyable; (2) expectations about doing many experiments; (3) expectations about being in a science lab; (4) expectations about reducing an overloaded science curriculum; (5) expectations about doing inquiry based science; (6) expectations about using technology especially computers in the lesson; and (7) expectations about having teacher-centered teaching style in their classroom.

These results give very important concerns regarding the current elementary teachers and their development of teaching practice.

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Primary School Students’ Performance of Scientific Process Skills

Esin Sahin-Pekmez, Gul Unal Coban, Bilge Can

ABSTRACT

In most of science curriculums in the world one of the points emphasized is that students should be taught about scientific process skills. This is necessary for making individuals as problem solvers. If this is one of our targets we should assess whether we are successful on developing students’ procedural understanding or not. This research, which could be called such an assessment, has tried to find out primary school students’ performance of using scientific process skills.

The qualitative data collected by working with 376 students from 4 primary schools. In each school there were four classes from each grade (5th, 6th, 7th, and 8th). Some working sheets were prepared for students to encourage them to carry out experiments. The working sheets, which were designed as open-ended, were prepared about different topics. The topics (parallel to the curriculum) and the grades are as follows. Isolation of heat: 5th grade; frictional force on a ramp: 6th, 7th and 8th grades; electric circuits: 6th and 7th grade; buoyancy: 6th and 7th grade; electromagnetism: 8th grade. The working sheets began with a problem and designed so as to check if the students could formulate a hypothesis; decide the variables and design an experiment; write down their observations; express the results of the experiment; present the data; and evaluate themselves.

The qualitative analysis of the working sheets showed that 35% of the students could make a hypothesis. On the other hand the least ranking was 6% for deciding variables. The others were 19% for expressing the results; 17% for designing a fair test, 11% for presenting the results and 7% for stating views about reliability. It can be concluded that students’ ability of using scientific process skills are weak and need to be improved regarding almost all aspects. Since this study has been done qualitatively—the research gives important details about primary school students’ procedural understanding—the results are quite thought provoking for both curriculum makers and teachers.

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Learning strategies are the ways that make easy to learn in school and out of school. Students can use vary learning strategies by their skills and their interests. The purpose of study was to investigate Turkish primary students’ preferences when studying and the effect of gender on their learning strategies preferences. Survey model was employed in this study. The survey consisted of four open-ended questions;

- What type of study environment do you learn best?
- How you should study for best learning?
- What are the interferences in your studying?
- What teaching method that your teachers use would you prefer for your better understanding? Why? (Yılmaz, Karadağ ve Selanik Ay, 2007)

The scope of the study is composed of 4th and 5th grade One hundred ten (students, 55 girls and 55 boys, studying in İzmir Province. In this study, the data obtained were analyzed via descriptive analysis, one of qualitative research techniques. According to the results of this research, “to study in silence environment;” “a way to repeat subject;” “Different types of noise in studying environment;” “Teacher should lecture with examples and to be read and be taken notes to students,” are the top answers for each questions. It was found there is no statistically differences between girls and boys’ learning strategies preferences. Although both boys and girls’ preferences of learning strategies were very similar, boys had a wide variety of learning strategies.

Keywords: Learning Strategies, Meaningful Learning, Gender Differences
Democracy
PSD In A Small Island Community—Presenting The Maltese Democratic Model

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Democracy does not mean you always have your way, but it means you’ll always have your say

(Adler A.)

Abstract

PSD (Personal and Social Development) in Malta has evolved in a unique way. It developed through a bottom-up approach, where an experience in two church schools in 1986, eventually led to the subject being taken up in state and other schools as from 1988–1989. Another unique characteristic of PSD in Malta is that its methodology and approach are based on a psycho-social rather than the academic/theoretical approach. This paper intends to present the ‘teacher’-training model used in our university.

Introduction

Personal and Social Development (PSD) in the Maltese islands developed in a unique way, in that it was not imposed as a policy, but gained ground as people started understanding its positive effects. Its development and implementation is in itself a journey in the way educators started viewing a more democratic system of education and teaching. This paper is meant to celebrate this development and to present what, we think, are the elements which made our model—fundamentally respectful of the concept of democracy. The mission statement of the PSD syllabus states: ’PSD aims at empowering students to develop skills, knowledge and attitudes which will enable them to live and participate fruitfully and effectively in their environment (Abela et al, 2002, p. 2). This is the essence of democracy—living freely and responsibly, respecting others.

PSD aims at empowering students to fulfil their potential effectively and positively. Although the pedagogical skills used in PSD in Malta, promote the concept that students/participants arrive at their own value system, the inherent philosophy and implementation of the subject promotes universally regarded positive values such as respect for self and others, diversity, critical thinking, problem solving and democracy. These are similar to aims of PSD in other countries. For example, according to the National Guidelines of the Scottish Office Education Department (2008), PSD covers four areas: interpersonal relationships, independence and interdependence, self-awareness, and self-esteem, where PSD specialists in a school community should use these events sensitively to help pupils explore their actions, feelings and attitudes, and students encouraged to acknowledge and value their abilities and see these as contributing to their worth as members of a community.

Alternatively, Ireland has very similar aims for Social Personal and Health Education. These include enabling students to develop skills for self fulfilment and living in communities, promoting self-esteem and confidence, enabling students to develop a framework for responsible decision making, providing opportunities for reflection and discussion and promoting physical mental, and emotional health and well-being. (MIE, 2008) Similar aims are found in the Welsh PSD syllabus (DCEL 2008). All these aims refer to attitudes, knowledge, awareness, perceptions understanding, abilities and skills in democratic concepts—relation to self and others, social responsibilities and morality to become actively involved in the productive, social and civic life of the community.
In the UK, the subject takes the form of many names: Personal, Social and Health Education, (PSHE), Personal Social Health and Citizenship Education (PSHCE), PSHME, where M stands for Moral, PSHEE, where the first E stand for Economic, CRED (Citizenship, and Religious Education), among others (Infotrac College Edition, 2005). It is taught to students aged five to sixteen through a non-statutory framework introduced in 2000 and contains a wide range of topics ranging from sex and relationship education (SRE), to drug education to personal hygiene. (UK National Curriculum Online 2007) According to Ofsted (2005), the core of PSHE consists of health education, including sex and relationship education and drug education, careers education and guidance, and work-related learning. In Malta, the subject has one name, is compulsory and is more comprehensive as will be presented in this paper.

The growth of PSD in Maltese schools

According to Sultana (1992), the socio-economic situation brought about by high unemployment in countries such as England and Australia, instigated the introduction of this subject. Sultana reports that locally ‘the first experiments in the introduction of PSD curricula were carried out in Church private schools’ (Sultana, 1997, p.249) and concludes that the introduction of PSD in Malta in state schools, as far back as 1988, was ‘as a panacea for various ills’. These included a growing concern about the health and well-being of young people in Malta. (Abela, 1994)

It was precisely this concern which prompted the first lifeskills course on the islands in the late 1980s. When strategies for intervention were being considered, part of the solution was found to be in educational programmes based on the concepts and teaching materials of Button (1974), Hopson & Scally (1981), and Nelson-Jones (1991). Caritas Malta held the first lifeskills course in the history of our education as part of its drug prevention. programme. An open invitation was issued to all teachers and Headteachers employed in Church schools. Dr Cole (Interviewed 2008), who at the time worked at Caritas and was responsible for this training programme notes: ‘the fact that teachers and heads of schools were exposed to training that used participatory training methods proved critical in gaining schools’ support to lifeskills.’

In October 1986, two Church schools, whose heads had attended these initial courses, incorporated the subject in the school curriculum. Lifeskills, as it was then known, was introduced as a specific subject on the timetable throughout their Senior Schools. It was allotted a double lesson every two weeks and each class of thirty was divided into two groups. The whole content of this subject was transmitted in an experiential way and the foundation was based on team work at the planning, implementation and evaluation stage of the curriculum. (Muscat, 2006). Dr Cole (Interviewed 2008) notes that she believes that the fact that the Caritas ‘training was given by a team of four people from different disciplines—Mr and Ms Fava (educators), Ms Borg Cunen (Psychologist) and myself (Social Worker)’, was important for the later ethos and development of PSD.

This practice became a model for the introduction of PSD in state schools. A person who proved important in this process was Mr Joe Sammut, who was working at the Guidance and Counselling Services of the Department of Education and who was also a volunteer of the Caritas Malta Volunteer Group working on Drug Prevention. As Dr Cole puts it: ‘I really believe that there was an important element of serendipity that played a part.’ (Interviewed 2008). According to Sultana (1997) the stress and anxiety in Junior Lyceums caused by an emphasis on examinations and competitive assessments and, coupled with absenteeism in trade schools, facilitated the acceptance of personal and social education.

According to Lawrence Muscat (Interviewed 2008), Maryann Agius, a state school counsellor at the time, was a key figure in the introduction of PSD in state schools. Counsellors took the initiative to carry out lifeskills projects during school breaks and occasionally during weekends. Therefore PSD appeared as an attitude and approach to teaching and learning across the curriculum. In 1987, when a change in government took place, the new Minister of Education launched a campaign in favour of the ‘educa-
tion of the whole person’ (Sultana, 1997). In the 1988 Education Act, problem solving was included as a learning method, promoting ‘self learning and self education….(and) educated to exercise freedom with responsibility’ (Zammit Ciantar, 1992, page 66) and PSD was introduced in state schools.

In 1997, Muscat was appointed the first and only Education Officer for PSD and PSD was referred to as a compulsory subject (NMC, 1999). Muscat also introduced the concept of PSD in the primary school setting. He has since retired and been replaced by two subject coordinators. His post remains vacant.

In 1995, a report drawn up by the Consultative Committee on Education (Ministry of Education 1995) included discourse about creating ‘a caring school’ and ‘lifelong learning’ (p.18). On the other hand, it was observed that employers find a lack of communicative ability in many students due to ‘the underdevelopment of personal and social skills which is normally assumed the school is best placed to inculcate’ (p.18). One of the proposals to develop a caring school community included the setting up of a pastoral team, something which had been running in some schools for some time, and of which PSD specialists were members.

In March 1998, the draft of the National Minimum Curriculum (NMC) was published. In the section referring to PSD, it was suggested that PSD would have a slot on the timetable only up to Form II. This was seen as going against the same declarations in the draft. There was an open invitation for any interested party to bring forward observations and suggestions and concern was voiced. This decision was revoked and PSD now has a slot on the time table of every year in the Secondary School, lessons varying from one to two a week. PSD was also introduced in the primary sector as from 2003.

When the working groups for the NMC were set up in 1999, a PSD working group was included. This group changed the name from PSE (education) to Personal and Social Development to denote a more umbrella perspective and to better reflect its content and methodology.

This brief history of the development of the subject is in itself a study of democracy in action, where changes were made following discussion with stakeholders and observations of the situation. At the heart of PSD, there is always the democratic aspect as a way of life—from the way the syllabus was planned, the way it was introduced in schools, to the way issues are discussed in the Monday meetings held for PSD specialists on a national level.

**The Maltese structure for PSD—a democratic approach**

PSD in Malta developed more from a psycho-social rather than an educational perspective, and this is reflected in the methodology we have developed. (Muscat, 2006). This also had an effect on the development of the contents of the syllabus.

PSD was first taken on board by the Education Division (late 1980s) because the Minister of Education at the time wanted a subject to address the stress school children were experiencing (interview Lawrence Muscat, 2008). The first PSD programme was drawn up by Ronald Sultana in 1986. This programme was based on the concept of empowering students to ‘decode the realities of the work they live in… teaching critically about rather than for work and providing not merely adaptive and coping skills, but also the understanding and the civic courage in order to engage the inequalities and injustices which prevail so that emancipatory social relations can be developed’ (Sultana, 1992, p.166). It focused a lot on the development of skills. Some topics in this programme were the physical, thinking and emotional self, the relating self, the gendered self and the working self. The Maltese educational system recognized from the very start of the implementation of this subject that PSD should support and empower students to develop their own views on values in society and their responsibilities in their own lives (Muscat et al., 2000, in Giordmaina (ed.) 2000)
Since its implementation, PSD has enjoyed a good standing by all stakeholders. (Ministry of Education, 1995) Its importance and positive effects on students is acknowledged and importance of developing a “a caring school” climate, a thriving school community and “lifelong learning” (p.18), through the setting up of school-based pastoral teams including PSD specialists as members is noted.

The main aim of the NMC (1999) was to structure a curriculum in response to the ‘realities and challenges that have emerged in Maltese society, in a world that is becoming ever more complex, global and independent’ (p. 23). The values, objectives and principles proposed in the document, published ‘from a process of consultation...among the education community’ (p. 23), fall directly or indirectly under the definition of personal and social development as defined above, and stress how schools should work to help pupils in personal development and social education towards a ‘democratic environment’ (NMC, 1999, p.48). These include curricular principles such as respect for diversity, critical and creative thinking skills, education relevant for life, gender equality, vocation, competence and identity (p. 29–47); and educational objectives such as self-awareness and the development of a system of ethical and moral values and development of citizens and a democratic environment (p. 47–70). The raison d’etre of this NMC was that the educational community generally agreed that a dynamic curriculum should provide an education experience which

- Promotes fundamental values among students
- Facilitates their holistic development
- Motivates and prepares them to be lifelong learners
- Enables them to live a full and productive life in a shrinking global village
- Prepares them for the world of work, where change is a fact of life (p. 23)

With specific reference to PSD, this document noted that the strengthening of PSD ‘can occur through

- socialization of pupils in respect to moral, aesthetic, social and spiritual values;
- affirmation of personal identity, based on the notion that individuals have different ways of learning;
- affirmation of a social identity and a Maltese identity which entails that individuals be conceived of as citizens and members of society; and
- Development of basic life skills and learning skills. These abilities enable us to understand and face up to the challenge of a life characterized by continuous change.’

(NMC, 1999, p.77)

When the concept of a formal syllabus was being considered in the late 1990s, Mr Muscat received feedback that PSD specialists were willing to adapt to a syllabus, provided that they were allowed the flexibility to consider groups’ needs and address immediacy issues. Muscat notes that PSD Specialists felt that a syllabus would introduce a less accommodating appearance and allow teachers to do their job more effectively, consequently increasing the quality of learning. This was also the advice of the PSD Focus group.

The present 2005 PSD syllabus (MEYE, 2005) was revised from the Abela et al. (2005) syllabus. Its mission statement above sets the tone of the whole syllabus. The syllabus is spiral in concept (Button, 1974), develops psychological philosophical and sociological issues, and faithfully followed the NMC’s aims. (NMC, 1999)

The syllabus attempts ‘to reflect the physical, social, cognitive, moral and psychological needs of the students.’ (Abela et al., 2002, p.10) and the themes of the syllabus are based on the three-legged stool of knowledge, skills and attitudes. (Abela et al., 2002) as noted in Table 1 below.
Table 1: General Themes in the Maltese PSD Syllabus Form 1–5 (MOE, 2005)

| Form 1: | myself, working with others, study skills, health, growing up, safety society |
| Form 2: | self-awareness relationship with others, responsibility for learning, Health, physical development, addiction and assertiveness, leisure and recreation |
| Form 3: | self—expression, relationships organisation skills, responsible decision, sexual awareness Democracy, |
| Form 4: | expressing oneself, interpersonal relationships, child development, health and sexuality, social obligations, citizenship education, management Skills |
| Form 5: | aspects of relationships, social health issues, sexual issues, transitions |

As regards the primary school syllabus, a pilot study was launched in the academic year 2000–2001, where PSD was to be delivered along the lines of the Welsh syllabus. This generated a whole debate. Sultana (2004) argued that it is absurd to have to resort to sessions of PSD in schools where the pupils are trusted to a single educator who should be professionally trained and ethically bound to offer support and create an atmosphere where PSD is fostered. However, a research project with heads of school and a sample of teachers from the primary sector (MIE, 2003) yielded positive feedback on the effects of these sessions and most class teacher felt they needed specific training in PSD to be able to teach it in class.

A syllabus was developed, again based on the Welsh syllabus, but also reflecting the needs of the local context. (MIE2004) IT was developed into three main themes with age-appropriate topics and directly teaches children thinking skills (Debono, 1987, Debono 1999):

- Years One to Three: Myself, Relationships, Health and Safety
- Years Four to Six: Citizenship, Growing Up and Practical Skills
- Year Seven: Self, Practical Skills, Relationships and Citizenship, Growing Up and Safety

Currently, PSD sessions for Years One to Three have been stopped.

PSD Methodology

PSD methodology has strong democratic roots and embraces empowerment at every stage of learning. In the local context, it is based on two pillars: The Experiential Learning Cycle (Kolb, 1984) and Processing—a technique borrowed from the counselling field and adapted to group growth and learning in the PSD session. (Falzon, 1999, Muscat, 2006)

**Experiential learning (EL)**

Heron (1999) defines EL as learning which takes place through an active process and involvement of the whole person ‘as a spiritually, energetically and physically endowed being encompassing feelings and emotion, intuition and imagination, reflection and discrimination, intention and action…The participants are learning from experience. These are the objectives of learning: the knowledge, skills, change of attitudes, affect and character structure and deeper transformation of being to be acquired by the learners.’ (p. 5)

Thus, a definition of EL needs to encompass a psychological, philosophical, social, learning, assessment and a pedagogical context. In short, EL is the abstraction of the world around us—the way we informally learn beyond and without an institutionalised context. (Evans, 1994; Warner and McGill 1989; White, 1989; In PSD sessions, then, facilitators try to bring the world to the students and, at least for that point in time, students are glimpsing a natural way of learning. Whitaker (1995), in fact, claims that ‘this interactive process of action, reflection and planning is at the heart of all successful learning and needs to occupy a significant place of schooling process.’ (p.15).
PSD must, because of its very nature, assume that attitudes and skills are acquired through EL. These are skills we use everyday to survive better in a healthy democratic community. This has always been stressed upon in PSD on the island and in fact, PSD sessions are held in groups of not more than 15 students in order to ensure that students are given the environment to truly learn experientially. The classroom is arranged in a circle or a horse-shoe formation such that each participant can view each other and the PSD specialist will equal time and attention to individual participants. Nelson-Jones, (1991).

The methodology is based on Kolb’s EL cycle (Kolb, 1984), and our choice for this was no coincidence. Kolb’s cycle is actually the most widely used in the field of EL (Henry 1989). It is also influenced by Dewey; ‘processes of instruction where he refer to a five stage cycle: (1) the choice of activities students are interested in throughout the educational experience (2) a general problem to address develops in the session(3) information and observation to deal with the problem is provided and presented (4) suggested solutions elicited (5) opportunity to test, to clarify and to discover for themselves the validity of a solution’ (1916, p.163)

This cycle (Figure 1) elicits learning from the participants own experiences, be they real or simulated through an activity—for example—role play, and follows the concept of constructivism (Steffe and Gale, 1995) and learning by discovery (Schwebel, 1978, Labinowicz, 1980, Gredler, 2004, Ormrod, 2007).

![Experiential Learning Cycle](image)

**Figure 1:** Experiential Learning Cycle (Kolb, 1984)

Let us take, as an example, the facilitator who ties a balloon round each of the students’ legs and informs them that one wins if one’s balloon is not burst (Darmanin, 1992). This is clearly a simulation of a naturalistic context in life where one often find oneself in win-lose situations or in conflicts.

The students usually react by fighting each other to ensure that they burst their friends’ balloons but no one burst their own. Someone might then realise that if no-one had burst any balloon, everyone would have won. Whatever happens, it is the EL technique and the processing that follows which would al-
low the facilitator to help students acquire correct conflict management techniques, the objective of the above exercise, which can be referred to in future situations. (Whitaker, 1995)

A successful PSD session, therefore, involves the use of activities (natural learning situations) from which outcomes can be elicited. The use of EL identifies the need for the facilitator to melt into the background and let the learners flow into the session. Moreover, EL also includes the idea that we reflect upon and assess what has happened, in other words processing.

**Processing**

Activity issues such as role-play, brainstorming exercise, use of handout, discussions... highlight the EL aspect of PSD activities. These, however, can only become relevant if the facilitator successfully helps students to translate the activities into skills, skills which eventually become part of their daily repertoire. This is carried out through processing (Falzon, 1999). Dewey (1916) was actually the first educator to stress the importance of processing as opposed to content in education—what he called reflective teaching and routinezed teaching respectively—where the latter allowed for social awareness, flexibility, criticism and analysis.

The importance of processing is very aptly defined in the Maltese PSD Methodology Overview of the teacher training courses: ‘This is the lifeline of PSD. The (above) exercises would be pointless if not followed by and incorporated within processing. Any exercise or activity carried out by the facilitator during a PSD session MUST be followed and concluded by processing. Without correct processing, the students would not be able to integrate and internalise what they have experienced during the particular exercise, and hence will also not be able to transfer the learning to real life. This would impede true personal growth and change, thus defeating the aims and rationale of PSD. The participants must therefore understand and be able to use this technique extremely well.’ (Falzon, 2008, p. 3)

The skill of processing is a basic tool. Processing requires particular teacher-training involving a good grounding in psychological theory and knowledge, particularly with regard to communication skills as well as a sociological/philosophical background. During this part of the session, PSD specialists use the group’s skills, presence and participation to motivate them to reflect, analyze and act upon their participation during the activity. The group leader must therefore be well-trained in what Shor (1987) terms as performing skills. These include thinking skills, communication skills, leadership skills, discussion provoking skills, questioning techniques, helping skills (Egan, 2005) such as probing and paraphrasing, as well as presentation skills such that participation can be encouraged and developed to provocative dialogue (Shor, 1987).

Bond (1986) does not refer to this learning experience as ‘processing’ but as ‘discussion’. He refers to stages necessary when facilitating through a game. Bond feels that this stage is paramount to PSD learning and should never be ‘omitted or rushed’. Napier and Gershenfeld (1999) again do not mention the term ‘processing’. However, in the thousands of games created in their publication they always refer to the need to finish an activity using the principles of processing as outlined above.

During processing, the group leader also respects the concept of ‘role release’ (Orelove and Sobsey, 2004) and a supporter, as opposed to taking on the role of the expert. This democratic concept of exchange and mutual learning must be present at all times. PSD specialists must see themselves as enabling empowerment or, as Freire’s describes, someone who is ‘critical and knows that although it is within the power of humans to create and transform, in a concrete situation of alienation individuals may be impaired in the use of that power (Freire 1998, p. 72). It gives every participant the opportunity to voice themselves.

In contrast, PSHE in the UK, is taught through a variety of activities including group work, role play, games, discussions, quizzes, written tasks and visiting speakers and organisations. Ofsted (2005) reports that teachers make more effective use of group work, use role play less and circle time more in PSHE.
However, PSHE programmes still more often than not focus on knowledge. Moreover, teachers with weaker subject knowledge tend to fall back on the more tangible aspects of programmes and conventional teaching methods and do not address attitudes (Ofsted, 2005). Our Philosophy of PSD as well as teacher training for the subject is different in our context. In fact, whereas the UK is recommending and promoting the use of circle-time, PSD in Malta has used this set up since its inception 20 years ago.

Processing is so important in our model of PSD that it is inherent even in teacher training, where the process model has again been adopted. The aim is ‘to help and prepare the future facilitator develop a wide conceptual and procedural framework for the theory and practice of Personal and Social (Lifeskills) Facilitation in Educational settings and to promote participants’ personal growth and social development within the group.’ (Giordmania ed., 2000, p. 214)

Teacher training

‘A teacher should have maximal authority and minimal power.’

T.S. Szasz (1990)

Historical overview

In 1988, the Department of Education ran a week-long PSD course in Malta. Another two courses were organized to supplement this course. Teachers who had been facilitating the subject in Church schools were often asked to facilitate sessions. This in itself was consolidating principles underlying PSD, by empowerment to test their skills in the framework of the EL cycle (Kolb, 1984). In 1992, a one-year certificate course in the ‘Facilitation of Personal and Social Lifeskills’ was organised by the University. The entry requirements included Teaching Qualifications and five years teaching experience. As from 1992, qualifications could be obtained through degrees which included Psychology and Philosophy or Sociology and a Post Graduate Certificate in Education, with PSD as the area of study.

As from 1999, students could also choose to specialize in PSD and another area throughout the four-year Bachelor of Education (Hons) course. Since 2004, the specialization area has been reduced to a single subject. Whilst there are specific qualifications leading to a teaching warrant in PSD in secondary schools, there is a lack of specific training for primary PSD specialists. The current requirements for PSD primary specialists in Malta are a B. Ed. (Hons) in primary education and at least one year of experience as a primary school teacher. In-service training is then given.

In contrast, in the UK, there is no specific first degree or P.G.C.E or PSHE teachers. Teachers need to achieve a Qualified Teachers Status (QTS) and then follow a Continuing Professional Development Programme (CPD). Therefore, any teacher can become a PSHE specialist. The advantage of this is that any teacher who feels that they can contribute to this kind of development in their students, would be able follow the CPD program which would give them the qualification necessary to do so, the disadvantage is lack of appropriate training. QCA (2005) disagrees that PSHE is taught by non specialist teachers, whilst Ofsted (2005) noted that ‘the quality of teaching is unsatisfactory in twice as many lessons taught by tutors as by specialist teachers.

The set-up of the training

The set-up of our two university PSD training courses, are based on nine proficiencies. The concept of a utopian democratic society in mind (Polan, 1991) underpins these courses. The fundamental objective of our training is that we both want our PSD specialists to be ‘in a unique position as agents of personal, and through that, social change’ (Hopson and Scally, 1981, p. 60), as well as focus on the quality of teacher-learner relationships as this is crucial to effective teaching, where ‘the needs of the teacher are
respected by the students and the needs of the students are respected by the teacher’ (Gardner, 2003, P.5)

These nine proficiencies are:

1. professional competency,
2. philosophical framework,
3. Inclusive Philosophy,
4. Ethical behaviour,
5. Basic Human Values,
6. Facilitation skills,
7. Observational Skills,
8. Personality,

Apart from the general core teacher-training subjects, such as educational studies, covered by all teacher trainees at the university, professional competencies for PSD teacher trainees include psychology, philosophy, sociology, health, methodology, and personal development. The philosophical framework includes lifelong learning, PSD as a way of life (Nelson Jones, 1991), role modelling, where it is emphasized that PSD specialists are the main textbook in class, positive perspective of life, whole school approach, democracy, and relationships. Our inclusive philosophy celebrates diversity and is promoted throughout, whilst ethical behaviour specifically addresses confidentiality, disclosure and boundaries, respect for the individual, respect for the community and language usage. Basic human values include inclusion, acceptance, harmony, cooperation, human rights, respect and uniqueness. The methodology training includes facilitation skills, observational skills, EL and processing, as has been detailed in the above section. The course also focuses on personal growth and independent learning, internal motivation, openness to feedback, balanced life, confidence, acceptance of self, openness to continuous growth. Leadership and self evaluation skills are promoted. During the course of our training, we place special emphasis on personal growth as well as feel that this is paramount if we want our PSD specialists to have a positive influence on our students.

Table 2: B.Ed (Hons) PSD Programme

<table>
<thead>
<tr>
<th>Secondary Curriculum Studies</th>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
<th>Yr 4</th>
<th>Total</th>
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<tr>
<td>Psychology</td>
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<td>40</td>
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<td>26</td>
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<td>04</td>
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<td>08</td>
<td>04</td>
<td>04</td>
<td>24</td>
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<tr>
<td>PSD</td>
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<td>06</td>
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<td>06</td>
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<td>Education Studies</td>
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<td>Sociology/Philosophy/ Psychology</td>
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<td>4</td>
<td>16</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>RICTE</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Professional Development Portfolio</td>
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<td>2</td>
<td>4</td>
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<tr>
<td>Diversity in the classroom</td>
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<td>2</td>
<td>4</td>
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<tr>
<td>Education and the Law</td>
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<td>2</td>
<td>4</td>
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<tr>
<td>Field Placement</td>
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<td>8</td>
<td>8</td>
<td>8</td>
<td>32</td>
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<tr>
<td>Research Methods</td>
<td>4</td>
<td>4</td>
<td></td>
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<td>4</td>
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<tr>
<td>Dissertation</td>
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<td>12</td>
<td></td>
<td></td>
<td>5.0%</td>
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<tr>
<td>Optional Study unit</td>
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<td>2</td>
<td>2</td>
<td>08</td>
<td>3.3%</td>
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<td><strong>TOTAL</strong></td>
<td>240</td>
<td>100</td>
<td>0.0%</td>
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</tr>
</tbody>
</table>
In ECTS terms, the B.Ed (Hons) course has 240 credits, out of which 55.8% are in the chosen area of study, as noted in Table 2, whilst the PGCE course has a total of 60 credits out of which 16.7% is dedicated to PSD methodology, apart from school experiences and teaching practice placements.

**Table 3: PGCE/PSD Programme**

<table>
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<th>Areas</th>
<th>Description</th>
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<td>Education Studies</td>
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<tr>
<td></td>
<td>Situations and Themes in Education II – Sociology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Situations and Themes in Education III – Education</td>
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<tr>
<td>Inclusive Education</td>
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<td>Pedagogy/Curriculum Studies</td>
<td>PSD</td>
<td>10</td>
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<tr>
<td>RICTE</td>
<td>Educational Resources</td>
<td>8</td>
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<tr>
<td>Teaching Practice</td>
<td>School Experience</td>
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<tr>
<td></td>
<td>Advisory Phase (Nov./Dec.)</td>
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</tr>
<tr>
<td></td>
<td>Evaluative Phase (Mar./Apr.)</td>
<td>14</td>
</tr>
<tr>
<td>Long Essay/Project</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**PSD and Democracy**

*A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience.*

(Dewey, 1916, p. 87)

The Council of Europe, (2002) notes that ‘while the aims and content of citizenship education may be highly diversified, three key themes are of particular interest. Citizenship education is normally meant to guide pupils towards (a) political literacy, (b) critical thinking and the development of certain attitudes and values and (c) active participation.’

With the recent enlargement of the EU, the concept of democracy and citizenship have become increasingly important on national political agenda, and more so in Malta as a member state. As Europe grows and becomes closer, it has become vital to promote what is meant to be a responsible European citizen within a democratically based Europe. Therefore, there is a need to help students develop a positive civic attitude. In the interests of a common European identity, pupils need to understand what a ‘good’ citizen is, and understand the rights as well as duties this entails.

If one were to analyse Table 1 above and the framework of our teacher training programme, one notes that this theme is recurrent in both curricula and this notion is explored from an intrapersonal, interpersonal, philosophical and sociological perspective at both school and ITA level. This raises issues concerned with awareness, attitudes and knowledge of rights and duties, as well as values such as democracy and human rights, equality, active participation, social cohesion, solidarity, diversity, equity and social justice. (Council of Europe, 1997)

In many primary schools in the UK, citizenship is incorporated within the PSHE curriculum, a non-statutory subject. As from 2002, citizenship, unlike PSHE, was declared compulsory. It is seen as a
separate subject in the curriculum, and covers public policy dilemmas related to health, law and family. Since PSHE is not compulsory, some schools have tried to develop a whole school approach to pupils’ personal, social, emotional development because citizenship lessons take up more curriculum time. (Ofsted, 2005)

Conclusion

Citizen Education is part of our PSD syllabus and therefore compulsory. Moreover, apart from the fact that that is listed as content, the very methodology and class set-up used is inherently democratic as it continuously promotes empowerment and tries to help students strive for a better world. It is our hope that PSD in schools is not only a timetable slot, but embedded in a whole school approach, to reflect a thriving democratic micro-community.

As one 12-year-old put it: ‘During PSD, I can at least say what I think without being punished. I know that the PSD teacher will try to listen to me and understand what I am really trying to say and help me say it better. This makes me feel safe….If she wants to make a rule, she asks you for your opinion. The others say—if you don’t like it, pacenzja. (bear it)’

References

Abstract

Learning of literacy by application of puppet method is a new method of initial reading and writing based on application of puppet theatre art in learning of literacy. I have been researching puppet method in learning of literacy experimentally by 1998/99 school year in Faculty for Teachers in Belgrade, in high schools for pre-school teachers in Belgrade and Aleksinac, also in schools for deaf and disable children in Serbia and Montenegro.

The method combines theoretic knowledges from areas of educational puppetry, psychology of development and psychology of deafness making connection between symbolic function of puppet art and development of symbolic function in children’s growing and development of speech and thinking of deaf children.

Puppet method is an absolutely new curriculum of initial reading and writing which supposes a specific manner of learning of Serbian Cyrillic alphabet.

For puppet method of initial reading and writing are concepted special puppets as methodical instruments. All letters of Serbian Cyrillic alphabet are represented by puppet in shape of that letter. The puppet presents also one thing or being which name is starting by that letter (and it is possible to be present in the shape of this letter). The letter in form and function of puppet realizes itself simultaneously as sign of literacy, as voice and as a guest, making the body of one of representative concept connecting with that letter. Concepts represented by puppet letters are chosen by criterion of development and adoption starting by well-known vocabulary for preschool children.

Special value of puppet method presents model of children’s learning of literacy—through the play as the only corresponding manner. The puppet Serbian alphabet made by children (with methodical help of teachers) who participate in all the phases of realisation of puppet performance (by text, across the creating and making the puppets to voice characterisation and animation of puppets).

1 Introduction

Learning of literacy by application of puppet method is a new method of initial reading and writing based on application of puppet theatre art in learning of literacy. I have been researching puppet method in learning of literacy experimentally by 1998/99 school year in Faculty for Teachers in Belgrade, in High schools for teachers in kindergarten in Belgrade and Aleksinac, also in schools for deaf and disable children in Serbia and Montenegro.

2 Theoretic basement of puppet method

2.1 Educational puppetry

Puppet theatre art has symbols, metaphors and incorporates qualities causing its exclusive educational possibilities. Puppetry in process of education realizes many of functions: aesthetic, educational, therapeutic and function of development of child’s cognitive, sensitive and emotional possibilities.
Puppet that is basic expressive instrument of puppet theatre art represents symbol and creates theatre’s metaphors causing exclusive possibilities of sensual representation as the most complicated process of thinking as the biggest abstractions. Symbolic function of puppet that acts in accordance with characteristics of preschool child’s thinking (which requires that ideas and relationships must be present in concrete forms). These are the reasons puppet represents optimal didactic and methodical instrument in education of preschool children.

Special value of puppetry in education represents teaching only through play. Knowledge acquired by puppet plays is durable and acceptable for further perfecting and transfer being result of child’s consciousness and voluntary activity. Also child’s puppet play is in accordance with individual possibilities and special talents of child meaning as child’s right to be different as demonstration of child’s creativity in various shapes, level and combinations.

Answering to the deepest child psycho and spiritual needs, puppet affects both to child unconsciousness and child cognitive realizing thearapeutic function very important for preschool age.

2.2 Psychology of child’s development

Appearing of all of innovation in speech’s development is possible if cognitive assumptions have already existed. Because puppet method begins by stadium in child’s cognitive development in period of starting school or learning literacy (his perceptional, memorial and intellectual possibilities). Exactly, method bases on scientific relevant facts: the preschool age is period of preoperational thinking operating with concrete operations ( and operational thinking is in process of formatting yet); child adopts knowledge from his surroundings best; process of generalisation in child’s mind is directly connected with things could be observed by child; child has exclusive abilities of associating (then he very easy recognizes letters never mind he doesn’t remember them).

Theoretic system of Lev Vygotski represents universal conceptual frame for researching of development of child’s symbolic function. [1]

Fundamental for application of puppet method is: child playing by puppets being semiotic complicated (there are loud speech, symbolic objects, playing the roles, mental pictures, motoric-gesture signs) is symbolic play.

Puppet in symbolic function is in correlation with basic groups of symbolic instruments: iconic, motoric-gesture and arbitrary, beginning by characteristics and functions of iconic and language semiotic system. Development of speech doesn’t push out iconic means specializing them for different functions and acting them supplement of speech.

2.3 Psychology of Deafness

Learning of literacy by application of puppet method is based on: theories of visual memory and Learning of verbal materials, theories about visual perception of deaf children, theories of visual memory, theories about relationship between abstract thinking and speech and theories about interdependence between development of speech of deaf children and development of their cognitive abilities.

Development of speech of deaf children is connected with development of symbolisation and conceptual thinking. In that field of scientific interest the most important are researching of Lev Vygotski [2] about: thinking and speech, relationship between intellectual and symbolic functions, role of signs in development of higher psychic functions and connection between symbolic operations and organisation.
of psychic processes of child. Vygotski thinks whole history of development of higher psychic functions is change of interfunctional relations between word and act.

Theories of defectology by Vygotski have special value for puppet method speech and language of deaf children. Vygotski found that in practice speech wasn’t in function of holistic experience and life of deaf child. Therefore he experimentally tried to find a new method of teaching of speech and language of deaf children. Articulation of speech have only constructed, not language and consequently thinking. He initiates new confirmation of some types of deaf child’s speech, especially mimic and written speech, insisting on structural linking of different types of speech and differential access to speech development of deaf children.

3 Specifics and Preferences of Puppet Method

Puppet method is absolutely new curriculum of initial reading and writing which supposes specific manner of learning of Serbian Cyrillic alphabet.

For puppet method of initial reading and writing are conceited special puppets as methodical instruments. Each of the letters of Serbian Cyrillic alphabet is represented by puppet in shape of that letter. The puppet presents also one thing or being which name is starting by that letter (and it is possible to be present in the shape of this letter). The letter in form and function of puppet realizes itself simultaneously as sign of literacy and as voice, making the body of one of representative concept connecting with that letter. Concepts represented by puppet letters are chosen by criteria of development and adoption starting by well-known vocabulary for preschool children. The standard of printed Serbian Cyrillic is used.

Puppet theatre art exists simultaneously in dimensions of space and time gives to letter both dimensions: puppet letter is “speaking letter”. Letter is understood as each of kinds of visual achieves language. Then, puppet method supposes knowing of typographic systems researching identification of visual forms.

Representing letter by puppet begins by modality of graphic expression of visual language. Letter-puppet embraces no graphic review-gesture and graphic review of a letter (verbal, pictorial and schematic). It combines letter and sign, voice and picture of the letter. Practically, puppet alphabet is combination of ideographic and phonetic letter, but it isn’t pictographic because each of the letter represents picture only of one concept which name starting by that letter. (It is important that Serbian isn’t phonomesymbolic language.)

Puppet forces main graphic characteristics of letter enabling emphasis of visual shape of letter more then in examples in printed or painted letters. Also graphic specifics of letter are used for direct presentation sublanguage reality.

According with all the primers puppet alphabet visually represents a letter by objects or beings which names begin with that letter but with preference: puppet letter lives and speaks!

Puppet method appreciates manner of children adoption of letters (which are more concrete than voices in children reception) aiming closer association of acoustic perception with optic perceptions of these written signs. When it is about design of puppet letters, it means creation in function of better connection between voice and referenced letter. Creation of puppet is based on incorporate quality of children perception.

Special value of puppet method presents model of children’s learning of literacy- through the play as the only corresponding manner.
The puppet Serbian alphabet is made by children (with methodical help of teachers) who participate in all the phases of realisation of puppet performance (by text, across the creating and making the puppets to voice characterisation and animation of puppets).

Making text and preparing performance with puppets-letters child practices heterogeneous use of speech in interaction with the other children developing his speech behaviour and reaching and activating his vocabulary. Creating and making puppets the child recognizes and differentiates colours and sizes developing these abilities and preparing him for reading and writing. Special quality of method is: making the shape of letter as puppet, child senso-motorically adopts it.

Developing and connecting psycho-motoric functions, visual perception, memory, auditive perception, orientation in space, concentration, attention and self-confidence, puppet animation results easy and rapidly learning of letters.

Then puppet method has all the qualities of method of active learning.

4 Discussion

The puppet method discusses and opens many problems:

- mixed gesture of puppets with gesture alphabet of deaf people;
- to represent or not to represent abstract nouns (as love, play, kiss) and relations by puppets;
- to write or not to write words by puppet letters;
- is it necessary to choose concepts symbolist for children;
- each of the letters must be represented only by one object or not, and consequences of it to latin version of Serbian alphabet and alphabets of foreign languages.

5 Conclusions

Learning of literacy by application of puppet method is one of the best method of preparation preschool children for learning how to read and write and learning of literacy (and speech) by deaf children developing their perception, memory and thinking.

In advanced is concreted special puppets for learning of English alphabet.

6 References


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Panwapa’s Island: Using Technology to Globalize Early Learners

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Arkansas State University

Abstract
Like the IBM KidSmart Early Learning program designed for children ages 3 to 7, the producers of Sesame Street designed a multi-media, worldwide initiative, Panwapa Island, geared at reaching children from ages 4–7 from the deserts of Afghanistan to the Cockpit Mountains of Jamaica. The multimedia platform was developed after many years of research and testing. The final product is a range of media including online, video, and print materials geared at early learners. The purpose of this workshop is to provide participants with a comprehensive multi-media educational program that has the potential to teach young children how to live and function in the global village, using technology to bridge this gap.

Key terms: multi-media, early learners, globalization, diversity, choice theory

Introduction
Is a global perspective important to early learners in today’s society? How can teachers of early learners develop an extended international learning community? How can technology help in bringing a global perspective to early learners? This session will focus on Sesame Street’s Panwapa’s Island curriculum that features a global approach to keep children at the center of the learning process.

Early learners are living and learning with technology at a very fast rate. They are not afraid to utilize all their senses in experimenting with, touching, and learning relevant information from technology. Young children learn in different ways and utilize different forms of media in the learning process. Each child has different strengths, weaknesses and preferences. There is a cumulative impact of the content young children learn that is delivered using various multi-media. Panwapa’s island educational program transports early learners to various places and teaches them about acceptance and tolerance of the views and experiences of others in an attempt to embrace diversity.

Today’s global landscape calls for the education of early learners to go beyond the walls of a given classroom. Globalization and its effects have forced us to think about educational complexities from multiple perspectives (Dimitriadis & Kamberelis, 1997). In fact, it is very easy to bring the world into the classroom by the use of modern technology that is inter-linked and inter-laced. This technology can be used as a resource for teaching early learners to be accepting of the views and experiences of others who may not sound, look, or act like them. Through dramas, songs and the use of puppets, Panwapa’s Island seeks to bring the world in the classroom of early learners.

Over the past decade the discussion regarding the use of new technologies has been mute (Bracey, 2002). There has been considerably growth in access to technology in American schools. With Federal funding, many teachers have been prepared to use technology effectively in the classroom as a means of bridging the digital divide. Technology is used continuously as a means of connecting students to the world. Darling-Hammond (1998) suggested that it is imperative for teachers to know not just about curriculum resources but also about available technologies. These recourses she further noted needs to connect their students with appropriate and needed information. This information must be relevant, impact their lives, as well as allow learners to utilize their critical, divergent thinking, and problem-
solving skills. The foundation on which the concept of Panwapa Island was developed is in keeping with Darling-Hammond’s views. Whereby, early learners utilizing this curriculum are able to express themselves creatively as they learn about world cultures at an early age (The world according to Sesame Street, 2007).

The Problem

Even with the ubiquity of technology in our world today, the struggle continues with the issue of diversity as it relates to acceptance of others, especially those who are different. The differences have no limits, including special needs, cultural, spiritual, ethnic, racial and regional differences. As a result, there is a need to start with early learners to teach them about themselves and others as the global village continues to get smaller and smaller especially with the use of today’s technological advancements. Children need guidance in developing age-appropriate knowledge and skills about themselves and others. In so doing, these early learners will be better prepared to be positive contributors to their homes, schools, communities and wider society (Educational Framework for Program Leaders, Teachers, Parents & Caregivers, 2007). By extension as they learn and grow in their respective communities, they will become more encouraged and motivated to be responsible and respectful global citizens. Today’s global village continues to feature more and more interdependence and early learners need to be cognizant about this interdependence and that “no man is an island.”

Theoretical Framework—Choice Theory

How can teacher educators use research to assist the early learners in learning about interdependence? On like adults who have the power to make choices, early learners are not mature enough to make those choices. As a result adults make many choices for early learners. Technological choices reside with parents and care givers as they seek to educate early learners. For clarity and a deeper understanding of the learning materials selected for early learners—choice theory (CT) was utilized to contextualize this research and to provide the theoretical framework guiding this research and providing deeper analysis.

Choice theory (CT) postulated by Glasser (1999) was selected to ground this case study research. The essence of CT is that our behaviors are chosen based on our genetic make-up to satisfy five basic needs postulated by Maslow (1970). He outlined these basic needs as: survival, love and belonging, power, freedom and fun. The use of CT with care givers of early learners is an important work aimed at helping them reflect on and take ownership for their actions. As a result, care givers need to evaluate educational materials and technology they select for early learners. The choice made by care givers results from their experiences, reviews, and lesson objectives. As a result, they have to reflect on the purpose of the technology, the information being communicated (educational, entertainment or recreational). CT explains that care givers including parents choose activities they want early learners to benefit from.

Technology and Early Learners

Today there is a proliferation of technology available on the market. One has to choose the technology carefully in order for it to benefit early learners. In the position paper by the National Association for the Education of Young Children (NAEYC), technology was described as playing a vital role now and in the future of all aspects of life in North America. Research has shown the potential benefits early learners can derive from technology that has been carefully selected to fit their developmental needs. The potential benefits of technology for young children’s learning and development are well documented, including researchers Wright and Shade (1994) work. Over the last decade, technology has become more accessible and easier to be used by early learners. This technology is very widespread as the digital divide narrows in the USA and the world at large. Hence, early childhood educators have an awesome responsibility to critically examine the impact of technology has on young children and be prepared to select, critique, and use technology to benefit children.
Using Technology To Teach Early Learners About Diversity

The creators of Panwapa Island envisioned the use of technology to bring diversity awareness to the kids who interact with the software. The friendly Muppets including Azibo and his friends are diverse in nature. The program is designed so that kids from all over the world are able to gather and meet virtually, go on global treasure hunts, watch videos, collect Panwapa cards and much, much more (http://media.iearn.org/projects/panwapa). At the foundation of the development of Panwapa Island is well-researched material aimed to celebrate cultural diversity and build global understanding. Panwapa means “here on this earth” in the Tshiluba language. The purpose of this educational experience for children is fostering the foundation for global citizenship and community in children. These traits are important for young children to develop at an early age (http://www.naeyc.org/about/positions/PSTEC98.asp).

Contextualization

Early childhood educators must plan software purchases with a clear purpose in mind. Any software selected should support the learning and curriculum—technology does not provide the learning. Consider creativity and productivity software as well as reference materials that are valid and reliable. Word processing, drawing programs, and integrated software packages such as KidPix, which typically combine word processing, drawing, spreadsheet, and database, are examples of software that rely on the child to do the creating.

For early learners to use computers effectively, early childhood educators need to select software that supports outlined goals, the underpinning philosophy of teaching, enhances the curriculum, and helps children solve problems independently. Children learn by doing (Piaget, 1934). Therefore, children should be given the opportunity to explore, be active and creative with the technology. Only programs that are well-suited to educational use and have passed stringent evaluation tests should be introduced to early learners. Many young children spend many hours playing computer games. However, not all computer games have clear educational focus. Some so-called “edutainment” programs—software claims to educate while entertaining. However, upon close assessment of the edutainment value a critical analysis will reveal they do not to the educational experience of a child and are not necessary in this setting.

Early childhood educators are aware that software can influence behaviors such as cooperation and motivation, as well as how children interact with each other. This is why they need to select software that supports such values both in the hidden and the exposed curriculum. Educators selecting the software should think about the experience as well as education they are desirous of their children having an =d exhibiting. Early learners need to have a solid and firm foundation on which to build new knowledge. As a result, selecting the correct software carefully will result in early learners having the quality and types of experiences that are most beneficial.

What was done?

As part of the early childhood curricular, children must learn how to care for themselves and for others around them. As a result, in a child care center, participants were introduced to the Sesame Street newest educational activity “Panwapa’s Island.” They watched the introductory video and commented briefly on the potential usefulness. All 31 participants agreed that the video presentation was kid friendly and could be useful to teach the concept of citizenship, diversity, and acceptance to early learners. Participants also indicated the need for them to interact with the program themselves in order to better evaluate its usefulness for the early learners they teach.
**Why is the Work Important?**

How does a parent clearly explain the reason for wars, killings and school shootings? It is a difficult task that needs to be done so that early learners can grow up and choose to make a positive impact in the society. This work with early learners is extremely important because children live what they learn. Using multimedia to teach early learners the concept of acceptance of others is important in today’s society. What if the Jena 6, as early learners, were socialized to respect and be responsible for themselves and others? Would they show the lack of respect and hurt a fellow student? I do not think so.

This presentation rates high on the area of importance for early childhood educators and parents. They will be able to become more knowledgeable about the resources that are available to reach and teach early learners about globalization:

- The *first* goal of “Panwapa’s Village” is for early learners to develop greater awareness of the wider world—understanding that the world in which we live is interlinked in multiple ways; they will be able to develop an appreciation for diversity among people; learn about cultures and sub-cultures; as well as learn about self-awareness and acceptance.
- The *second* goal is for early learners to learn how to appreciate similarities and simultaneously valuing differences. Embedded in this goal is for early learners to value diversity as well as the equity of personal rights.
- The *third* goal is for early learners to learn to take responsibility for their own behavior. It is important for students to learn responsibility for their actions early in their lives and how their actions impact the lives of others.
- The *fourth* goal is for early learners to learn community participation and willingness to take action. In essence, these students learn empathy, altruism and a desire to help others.
- The *final* goal is for early learners to develop an understanding of and responsiveness to economic disparity. Embedded in this goal is the promotion of an understanding that all people share basic needs. The aim is for students to learn fairness as well as valuing the needs of others.

**Further Research**

Participants were asked to review Panwapa’s Global Village using a checklist to evaluate its usefulness in the early learners curricular. The results of the evaluation will be presented at a later date. Some aspects they are asked to judge are: appropriateness; accuracy; user friendliness; stereotypes; design interface; ease of use and readability. Participants also are asked to make recommendations whether or not they would use this curriculum in the early childhood environment they currently work in.

**References**


Instructional Technology and Learning
Higher Order Thinking and Online Instruction: Current Practices and Potential Strategies

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Mr. Babbitt: “I can see what an influence these courses might have on the whole educational works. I don’t know but what maybe these correspondence courses might prove to be one of the most important American inventions.”

Mrs. Babbitt: “I think those correspondence courses are terrible! It sounds awful to me, the way they coax those poor young folks to think they’re learning something, and nobody ‘round to help them.”

Mr. Babbitt: “Nonsense! Get just as much studying at home. You don’t think a fellow learns any more because he blows his father’s hard-earned money . . . in a swell Harvard dormitory?”

Babbitt by Sinclair Lewis (1922, pp. 85–6)

Significance of the Study

Common rationales for distance education in general and online instruction in particular are threefold: affordability, convenience, and effectiveness. Their first two elements are important in terms of facilitating student needs and reducing the costs of higher education. The third reason, though—effectiveness—is the most crucial for instructors, and in the final analysis, students, in higher education. Can online education match or exceed instruction delivered through traditional approaches? This is a significant question in terms of online education and the use of educational technology.

The traditional goals of online course delivery for instructors in higher education have included the ability to transfer subject matter (facts, concepts, skills, and dispositions) and the capacity to teach critical thinking. This second element—critical thinking through higher order teaching and learning practices—has yet to reach its full potential. Much as the fictional Babbitts debated correspondence courses in the 1920s, critics of online courses today raise the issue of instructional effectiveness via the online mode of delivery. Some have disparagingly labeled online teaching as high tech information dumping via the internet or glorified correspondence courses taught through computers rather than the postal service. Yet there is little doubt that online courses, programs, and degrees are an integral part of higher education.

For the purposes of this paper, online instruction will be defined as any delivery system that provides full or partial teaching by use of the Internet. Synchronous delivery is defined as parallel time and asynchronous is defined as non-parallel time. One goal of online instruction should be to bridge the gap between theory and practice in order to incorporate higher order thinking, teaching, and learning within online teacher education courses. However, the question persists: Can online teaching indeed attain higher-order, critical thinking that is purported to be reached in traditional courses?

Methodology

The methodology for this study follows the traditional inquiry of educational research: 1) The significance of the issue is established, 2) the methodology is described, 3) a review of current research and literature is reported, 4) potential strategies drawn from practice and described, and 5) conclusions of the study are discussed.
Review of Current Research and Literature

Textbooks aimed at the creation and delivery of online courses and programs have not dealt with the issue of incorporating higher-order thinking strategies within course development. Neither Teaching Online: A Practical Guide (Ko & Rossen, 2001) nor Web Teaching Guide: A Practical Approach to Creating Course Web Sites (Horton, 2000) — both from prestigious presses — discuss the topic of critical thinking. Yet both books indicate the need for online courses to consider student learning and course effectiveness. If online teaching is to gain legitimacy the issue of integrating critical thinking within online courses will need to be addressed.

The literature and practitioners, though, have begun to discuss the topic. Until recently, teacher-centered information was seen to dominate online learning communities with the “transmission model” of learning merely being shifted from the classroom to the Internet. (Maor, 2003, p. 128) Riley (2006) has written that “Critical learning is a reflective activity with critical intent” (p. 63). Critical intent was defined as the sharing of informed judgments in a reflective process to generate critical ideas or theories about the validity of issues under consideration. Instructor non-participation is advocated in that it stresses “pupil collaboration, reflection, and Internet research” (Riley, pp. 63, 74).

Student discussion was viewed in the literature as critical to the goal of promoting higher-order thinking. Online synchronous discussion (OSD) was seen as increasing the opportunity for students to speak as compared to classroom discussion. The use of probing and synthesis questions can be used to facilitate knowledge construction by eliciting multiple perspectives and conclusions. A downside of OSD is that disjointed conversational threads can emerge or the main topic may be totally ignored (Wang, 2005).

In reference to asynchronous online learning, Schirire (2000) has posited that it has changed distance education from the industrial correspondence course model to network model of online collaborative learning. Online discussion was seen as “conducive to topical discussion, group interactions, synthesis of ideas, and learner reflection” (p. 477). Kirk (2000) was also an early proponent of this strategy. Garrison, Anderson, and Archer (2000) have made a similar point in connection with computer conferencing that online writing and collaboration are linked to higher-order thinking.

According to Scherff and Paulus (2006), successful asynchronous online discussions “focused on highly structured scaffolds for reflective thinking and cognitive presence” in order to achieve formal learning goals (p. 356). They concluded that “highly structured online discussions may promote more critical thinking and reflection as is desired by instructors of graduate courses” (p. 369)

Other researchers of online discussions have suggested that analytic frameworks and dialogic argumentation will lead to more sophisticated online learning environments. (Clark, Sampson, Weinberger, & Erkens, 2007) On this topic Hazari (2004) has written that “interacting with other students forces participants in discussion groups to explore different perspectives that lead to greater understanding of material to be learned” (p. 350).

With certain conditions in place, Astleitner (2002) has made the strongest case for online learning as a means of assuring critical thinking. These prerequisites included the need for instructional focus or guidance on critical thinking activities, the use of computer simulations, and the delivery of relevant feedback. Astleitner also found that when critical thinking was employed in online courses, a higher dropout rate occurred due to higher task difficulty.

Furthermore, in an online journal, Yong and Parrella ((2008) strongly argued for formulating questions “that call for student to analyze, think critically, and or problem solve” (p. 5). According to this practical guide to creating dynamic online discussions, critical questioning was central to any effective online discussion and instruction.
Potential Strategies Drawn from Practice

The experiences of the authors in online education and supporting research have provided the following five recommendations to enhance the inclusion of critical thinking in online education: (1) First and foremost is the use of higher-order questions within online instruction. Drawn from the standard yet still valid half-century-old work of Benjamin Bloom (Bloom, 1956), the use of questions categorized at the levels of application (level 3), analysis (level 4), synthesis (level 5) and evaluation (level 6) will draw students into the domain of critical thinking. This approach is predicated on a deep and rich knowledge base of the instructor in the discipline and also the ability to create and integrate higher-order questions within the context of the subject matter.

Several sources in the literature support the use of higher-order questioning strategies. McLoughlin and Luca (2002) advocated “a deep learning approach” compared to surface learning characterized as “passing exams by memorizing facts” (p. 574). Choi, Land, and Turgeon (2005) endorsed in their research the use of higher-order questions in asynchronous online discussion of peer-to-peer questioning. However, successful higher-order peer-to-peer questioning depended on the student’s ability to structure and exchange higher-order questions as well as be able to build a scaffold for deeper discussion through the support of guidance from the instructor. Lee and Molebash (2004) indicated the need for structure in successful online critical thinking and advocated the use of primary sources, especially in the discipline of history.

The comparison between synchronous and asynchronous platforms in online course discussions, as related to higher-order thinking, has been explored by Levin, He, and Robbins (2006). They found synchronous discussions generated higher levels of critical reflection than did asynchronous discussion formats. They also discovered (using Dewey’s definition of critical reflection rather than Bloom’s taxonomy) that students’ initial preferences for asynchronous discussion changed to the synchronous format as the course proceeded. Reasons for preferring the asynchronous model included more time to think and respond, more flexibility in terms of schedule, and previous negative experiences with online discussions. Positive aspects of synchronous discussion included immediate feedback, the discussion being more like “real conversation,” and the challenge of thinking intensely in a short time frame. Negative facets of asynchronous discussions were wait time for responses and the length of responses.

(2) Multi-media applications also have the potential to bring about higher-order, critical thinking. Streaming video has been a much-discussed element in web-designed courses. Quality, storage, and copyright costs have often been detrimental to the use of such media. However, paired with the use of strategic questioning and structured responses, the use of video — whether commercial, theatrical, or instructor developed — has been shown to have the capability of drawing students into deeper and more meaningful interaction with the subject matter at hand.

(3) The use of collaborative groups, as contrasted with discussion from the entire online class can effectively be used to facilitate high-order thinking. Placing students in online courses in groups of three to five members and assigning specific questions connected to the course content can prompt students to reach beyond the basic knowledge or comprehension levels of Bloom’s taxonomy. Because structure is provided through matrices and high level questions, students are motivated (and required) to move into deeper considerations of the material. A graduate philosophy of education course, taught by the author, is structured with 12 tenets for each philosophy (e.g. what does the philosophy say about the curriculum, what does the philosophy say about the nature of the learner, what does the philosophy say about the role of the teacher?). These question, which are at the application level or higher, prompt higher-order responses. Through this system, students respond, collaborate, and examine each other’s responses.

(4) The use of problem-based learning is also a path to critical thinking. The selection of germane problems or case studies within the context of the course subject matter can be a point of departure to move beyond routine, lower-level thinking. Pawan (2003) wrote about the research on the use of what
has been termed “critical incident reflections” that lead to critical reflection on the part of students in relation to online teaching. Myers (2006), in a discussion of the use of electronic journals, addressed the efficacy of reflective thinking in connection with teaching experiences in the schools. This tact can be easily transferred to the online platform.

(5) Finally, while online instruction is used for both undergraduate and graduate students, graduate students, especially in professional education bring a wealth of experience to the courses. Teachers, counselors, and administrators who work daily in classrooms and school settings are able to match their work with the content of graduate professional education courses to reach for metacognition in the online course. As suggested above, with the time allowed through asynchronous delivery of online classes, reflecting on and writing about professional experiences has the potential to engage students in critical thinking and bring new meaning to the student engaged in the process of online learning.

Conclusions

Leadbeater (2008) has globally explored the impact of the Internet on governmental, business, and educational institutions. He has concluded that the web has the ability to provide more access to education in a variety of venues than ever before. Leadbeater also viewed the web as allowing more innovation and creativity. But he also cautions that through its use, be it journalism, literature, film, or education, there is the possibility that quality could be compromised or even lost.

The effectiveness of online education courses and programs is of major concern to students, universities, and the public. This is a significant issue in that the efficacy of online education programs will be critiqued and evaluated to determine how they compare with traditional modes of instructional delivery. Current research and practice indicate that higher-order, critical thinking skills can be successfully integrated into online courses. Multiple studies over the past decade have established the ability and capacity of online education to successfully deliver this critical element.

Strategies to make such integration successful must be planned and based on best practices in the research we now know. If practice and research continue to substantiate this essential component in online teaching, then this new instructional approach to teaching and learning, deeply imbedded in educational technology, will gain credibility and acceptance by the public and practitioners, and most importantly provide valid learning opportunities for students.

References


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Mathematics
Learning through patterns: a powerful approach to algebraic thinking

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Abstract
We are engaged in a project named Mathematics and patterns in elementary schools: perspectives and classroom experiences of students and teachers. Our aim is to analyze the impact of an intervention centered on the study of patterns in the learning of mathematics concepts and on the development of communication and development of higher order thinking skills. In this paper we present part of an ongoing research with pre-service teachers concerning the development of teachers’ algebraic thinking, in particular how they move through pattern tasks involving generalization. We will present some of the tasks used in the didactical experience and some preliminary conclusions of its implementation in the mathematics didactics classes of a mathematics elementary teachers’ course of a School of Education.

Introduction
Many educators use patterns to promote generalization as a pre-algebraic activity (e.g. Mason, 1996). If algebra is a tool for expressing generalities, exploring patterns in the elementary levels lays the foundation for the algebraic reasoning. School teachers traditionally has a tendency to explore more the numerical than the visual patterns, which in many situations can be problematic to reach generalization, and consequently to get an algebraic expression or formula that generate any term of the sequence. Particularly counting tasks can be a way to develop some skills that provide students to translate visual patterns into numerical expressions and later to reach the far generalization of a pattern.

Number patterns, the relationship between variables and generalization, are considered important components of algebra curricula reform in many countries. Those curricula often use generalized number patterns as an introduction to algebra. In Portugal, these features are only now being considered in the elementary curricula development (ME, 2007). So, there is yet insufficient research with patterns at our country. As mathematics educators at training institutions that prepare pre-service teachers for K-6 grades it is important to develop such approach with these future teachers. In particular we are interested to develop some didactics strategies to enable future teachers/students to work with pattern tasks involving generalization grounded in visual/figurative contexts. In this paper we present some pattern tasks and pre-service teachers’ performance where it is shown the relation between visual and numeric expressions.

Theoretical framework and methodology
As mathematics educators we believe that professional development programs focusing on helping teachers to understand both the mathematics of specific content domains and students’ mathematical thinking in that domain have consistently been found to contribute to major changes in teachers’ instructional practices that have resulted in significant gains in students’ achievement.

We defend a constructivist perspective of mathematics learning where Problem solving is in the heart of mathematics (Halmos, 1980) and Mathematics is the science of patterns (Devlin, 2002). So, future
teachers must be involved in the same kind of activities that we want them to propose their own students, providing them a mathematics teaching that allow them to know and recognize the essence and power of patterns in learning mathematics.

**Patterns and problem solving**

Instructional mathematics programs should enable students, from pre-kindergarten through grade 12, to engage in several tasks involving the understanding of problems, patterns, relations and functions (NCTM, 2000). Problem solving tasks challenge students and demand for high mathematical thinking skills that involve communication, conjecture, generalization, argumentation and proof. A pattern based methodology approach challenges students to use higher order thinking skills and emphasizes exploration, investigation, conjecture and generalization; look for a pattern is a powerful problem solving strategy.

**Patterns and algebraic thinking**

Patterns are an effective way to encourage students to explore important ideas in the study of algebra as conjecture and generalization (Yeats et al., 2004). If algebra is a tool for expressing generalities, exploring patterns in the elementary levels lays the foundation for the algebraic reasoning (Usiskin, 1999; Kaput, 2007) considering Algebra the generalized arithmetic (Usiskin, 1999; Kaput, 2007). Algebra is more then manipulation of variables and formulas and students must experienced generalization tasks to get formula construction for remaining flexible and creative for long periods in their search for solution methods in solving pattern problems. If teachers are not in the habit of getting students to work at expressing their own generalizations, then mathematical thinking is not taking place, in particular the algebraic thinking. Otherwise pattern tasks gave students the opportunity to observe and verbalize their own generalizations and translate them symbolically (English & Warren, 1998). As Mason et al. (1985) say *Generalization is the heartbeat of mathematics* (pag.65).

Algebraic reasoning is a process in which students generalize mathematical ideas by the observation of a set of evidences establishing those generalizations through representations and argumentations, expressing them more and more in a formal way according age (Blanton & Kaput, 2005).

**“Seeing” a pattern**

Patterns can suggest numerical, visual and mixed approaches (Orton, 1999, Stacey, 1989). Visualization has an important role on student reasoning (Dreyfus, 1990). The ability to develop and use visual representational forms is valuable enough that should became an integral part of mathematical learning (Stylianous and Silver, 2004). Children and young adults have been known to possess a strong intuitive, visual grasp of mathematical ideas and concepts. So, teaching of mathematics must capitalize this feature of learners (Rivera & Becker, 2005). Mathematics learning must include problems that compel students to think visually and they can develop this ability through experiences in situations that require such thinking (Tripathi, 2008). As Mason et al (1989) say, before the use of algebraic symbolism we must look to prior aspects of generalization. This is our main concern. We must pay attention to the visual/figurative features that can be related to generalization. “Seeing” is an important component of generalization that young students must explore. So teaching needs to propose challenge tasks that emphasis the figurative and numerical understanding of generalization (Rivera & Becker, 2005).

This study seeks to understand in what way a didactical experience to both elementary pre-service teachers and students of grade 1–6, grounded on figurative pattern tasks that involve generalization, can contribute to approach algebraic thinking. We adopted a qualitative exploratory approach. We followed, in a part of the study, a class with 11 elementary (grade 1–6) pre-service teachers of ESEVC of the 4th year of a mathematics elementary teachers’ course of a School of Education during the mathematics didactic classes where it was implemented the didactical experience. The data was collected in a holistic, descriptive and interpretative way through observations, questionnaires and documents (e.g. worksheets, tests, individual works).
The didactical experience

The goal of the teaching experience was to promote a pattern approach to algebraic thinking through figurative tasks and explore the ways in which generalization tasks are related to figurative contexts and can be meaningfully to students. The key ideas are that patterns and algebra should be taught in combination with number concepts (Anderson & Gillard, 2004) and visual/figurative patterns tasks can be a powerful tool to get comprehensible numerical expressions. More than develop students skills to get a formula it is important that they understand the meaning of that formula or rule and reasoning in a way to convince themselves and the others of the validity of the rule or formula they get through generalization using numerical or visual/figurative methods. The aim of this experiment was to explore growth patterns to get generalization within figurative or concrete contexts that will be translated in numerical expressions and to apply basic mathematics concepts that can be used with elementary students. We were also interested to find out how future teachers performed inductive reasoning on pattern tasks that involved arithmetical sequences of numbers or from figures. We propose three main categories: counting, sequences and problems tasks.

School teachers traditionally has a tendency to explore more the numerical than the visual patterns which, in many situations, can be too difficult to reach generalization and, consequently, to get an algebraic expression or formula that generate any term of the sequence. Seeing a pattern is a necessary first step in pattern exploration (Lee & Freiman, 2006). Observe the following well known example on figure 1.

Figure 1: A pattern task

These figures are made with toothpicks

<table>
<thead>
<tr>
<th>fig.1</th>
<th>fig.2</th>
<th>fig.3</th>
<th>fig.4</th>
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</thead>
<tbody>
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<td></td>
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</tr>
</tbody>
</table>

1. How many toothpicks are needed for making the 10th figure?

2. How many toothpicks are needed for the 10th figure? Show or explain how you figured out.

3. Discover a rule for finding the number of toothpicks used in each figure. Explain with words or write a formula.

Traditionally, students as well teachers in their instruction translate the visual information into numerical information. We can look for sequence 4, 7, 10, 13, 16, … and use the inductive reasoning. Depending on the level of students, they can use a recursive method using the finite differences between consecutive numbers, as it is shown in the figure 2.

Figure 2: Numerical solution using finite differences

<table>
<thead>
<tr>
<th>figure</th>
<th># toothpicks</th>
<th># toothpicks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>+3</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>+3</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>+3</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>+3</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>+3</td>
</tr>
<tr>
<td>6</td>
<td>19</td>
<td>+3</td>
</tr>
<tr>
<td>7</td>
<td>22</td>
<td>+3</td>
</tr>
</tbody>
</table>
That can be translated in this form of “seeing”

That can be translated into the numerical chart

**Figure 3: Another Numerical solution**

<table>
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<tr>
<th>figure</th>
<th># toothpicks</th>
<th># toothpicks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4 + 3</td>
<td>4 + 2 x 3</td>
</tr>
<tr>
<td>2</td>
<td>4 + 3 + 3</td>
<td>4 + 3 x 3</td>
</tr>
<tr>
<td>3</td>
<td>4 + 3 + 3 + 3</td>
<td>4 + 4 x 3</td>
</tr>
<tr>
<td>4</td>
<td>4 + 3 + 3 + 3</td>
<td>4 + 5 x 3</td>
</tr>
<tr>
<td>5</td>
<td>4 + 3 + 3 + 3</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>4 + 3 + 3 + 3+...+3</td>
<td>4 + (n-1) x 3</td>
</tr>
</tbody>
</table>

And now we get a general rule that can be translated into a numerical sequence and an algebraic expression or formula that generate any term of the sequence in a easier way using basic mathematics concepts. Reciprocally they can understand and translate an expression into a visual sequence. They can get a rule explained with words or using a formula.

This example shows our thesis—an instruction that promote “seeing” the arrays in different ways we promote algebraic thinking and young students can get a numerical expression more easily. But, to promote this way of thinking, instructional programs must adopt it with (future) teachers.

**Some Results**

We present some resolutions of some tasks of the different categories of the experiment.

**Counting**

A sound arithmetic foundation is required for the learning of algebra. So, patterns and Algebra should be taught in combination with number concepts (Anderson & Gillard, 2004). Numerical tasks of counting have their foundations on the recognition of patterns. Counting tasks—find different ways of counting for choosing the best one—can be a way to develop some skills that provide students to translate visual patterns into numerical expressions and later to reach the far generalization of a pattern. Visual patterns tasks are a tool to get comprehensible numerical expressions: writing and see equivalence.
Task: Find different ways (as many as you can) to count the elements of the figures. Record each way as a numerical sentence.

The written work of this student shows three of the most common ways of seeing. Besides, promotes mental computation these kind of tasks give students the foundation of algebraic thinking.

Sequences with figures

To look for patterns in sequences (concrete, numerical, figurative) to reach generalization through rules that students formulate using symbols allow algebra learning in a gradual manner and reach abstraction.

We expected that students reach near and far generalization and represent mathematical ideas in different ways. Different solutions can be obtained through different ways of seeing that correspond to different algebraic expressions and allow them to understand their equivalence. Near generalization gives students an opportunity to get recursive reasoning while far generalization is an opportunity to get functional reasoning.

Task: Observe the sequence of rectangles

In this example we note that the student uses recursive reasoning through finite difference to get near generalization. Nevertheless, to get a far generalization, or the formula that translate the rule, he goes through another approach, perhaps grounded in the draws of the sequence.

1. Construct next figure
2. How many regions have each figure?
3 How many regions are needed for the 100th figure? Show or explain how you figured out.

In this example we note that the student uses recursive reasoning through finite difference to get near generalization. Nevertheless, to get a far generalization, or the formula that translate the rule, he goes through another approach, perhaps grounded in the draws of the sequence.

Problems

To look for a pattern is a powerful strategy of problem solving.

With these tasks, students have to construct their own sequences and discover the pattern for reach generalization and consequently get the solution. Far generalization can be reached through formulas or verbally depend on the level of the solver.
Task: The Osvald game

Osvald was playing with a cube and decide to paint in red all its faces. As he needs more cubes, decided to cut it in small cubes with the same dimensions. How many small cubes get Osvald from the big one? How many faces were painted? Try with different number of cuts. Get expressions to indicate the number of small cubes that have painted faces.

This resolution shows that student reduce the initial problem to a simple one, used a table to record all the elements that he gets from the text and then look for a pattern to reach the solution.

He had transformed the numbers he gets in each column in order to reach easily the far generalization.

Preliminary conclusions

Teachers must re-learn their algebraic concepts in a way that can help students to reasoning algebraic meaningfully by making connections between figurative and numerical strategies. This instructional process promote students to use different representations for generate a rule or formula. Then, they will be aware to get several different formulas by different ways of seeing to reach the solution.

We haven’t yet analyse all the data, but we can say that these kind of tasks allowed: to motivate students; to develop mathematical communication skills; to establish connections, namely between numbers and geometry; to give some comprehension about expressions and relationship with visual representation; to experience new situations promoting different strategies for counting; to look for different ‘seeings’, when they were working with numerical sequences and problems. That way, they develop communication and problem solving strategies and skills.

References


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The influence of visual strategies in generalization: a study with 6th grade students solving a pattern task

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ABSTRACT
This paper gives a description of an ongoing study focused on pattern exploration and generalization tasks. It evaluates the ways in which visual strategies can be used to enhance and enrich learners’ experience of generalization. The main purpose is to analyse strategies and difficulties presented by grade 6 students when solving these activities and to ascertain the role played by visualization in their reasoning.

INTRODUCTION
A quarter of a century ago, problem solving became a focus of school mathematics, and still is presently. According to the most recent curricular guidelines of several countries, one of the main purposes of mathematics learning is the development of the ability to solve problems. In spite of the curricular relevance given to this theme, several international studies (SIAEP, TIMSS, PISA) have shown that Portuguese students perform badly when solving problems (Ramalho, 1994; Amaro, Cardoso & Reis, 1994; OCDE, 2004). Pattern exploration tasks may contribute to the development of abilities related to problem solving, through emphasising the analysis of particular cases, organizing data in a systematic way, conjecturing and generalizing. For instance the Principles and Standards for School Mathematics (NCTM, 2000) acknowledges the importance of working with numeric, geometric and pictorial patterns. This document states that instructional mathematics programs should enable students, from pre-kindergarten to grade 12, to engage in activities involving understanding patterns, relations and functions. Besides, work with patterns may be helpful in building a more positive and meaningful image of mathematics and contribute to the development of several skills (Vale, Palhares, Cabrita & Borralho, 2006). On the other hand, Geometry is considered a source of interesting problems that can help students develop abilities such as visualization, reasoning and argumentation. Visualization, in particular, is an important mathematical ability but, according to some studies, its role hasn’t always been emphasized in students’ mathematical experiences (Healy & Hoyles, 1996; Presmeg, 2006). Although the usefulness of visualization is being recognized by many mathematics educators, in Portuguese classrooms teachers privilege numeric aspects over geometric ones (Vale & Pimentel, 2005). Considering it all, we think that more research is still necessary concerning the role images play in the understanding of mathematical concepts and particularly in problem solving.

This study intends to analyse difficulties and strategies emerging from the work of grade 6 students (11–12 years old) when solving problems involving patterns, and the role played by visualization on their reasoning. The tasks used in the study require pattern generalization. Students of this age have not yet had formal algebra instruction, thus the importance of analysing the nature of their approaches. This study attempts to address the following research questions:
1) Which difficulties do 6th grade students present when solving pattern exploration tasks?
2) How can we characterize students’ strategies?
3) What’s the role played by visualization on students’ reasoning?

THEORETICAL FRAMEWORK

Patterns in the teaching and learning of mathematics

Many mathematicians share an enthusiastic view about the role of patterns in mathematics, some even consider mathematics as being the science of patterns (Steen, 1990). The search for patterns is seen by some as a way of approaching Algebra since it is a fundamental step for establishing generalization, which is the essence of mathematics (Mason, Johnston-Wilder & Graham, 2005; Orton & Orton, 1999; Zazkis & Liljedahl, 2002). Searching for patterns in different contexts, using and understanding symbols and variables that represent patterns and generalizing are significant components of the mathematics curriculum in many countries. Portuguese curriculum mentions the importance of developing abilities like searching and exploring numeric and geometric patterns, as well as solving problems, looking for regularities, conjecturing and generalizing (DEB, 2001). These abilities are directly related to algebraic thinking and support the development of mathematical reasoning. Pattern seeking also plays an important role in the development of mathematical reasoning and in connecting mathematical ideas (NCTM, 2000).

The nature of mathematical thinking

Patterning activities can be developed in a variety of contexts (numeric, geometric, pictorial) and through the application of different approaches. Gardner (1993) claims that some individuals recognize regularities spatially or visually, while others notice them logically or analytically. In fact, it is common, in mathematical activities, that different individuals process information in different ways. Many students favour analytic methods while others have a tendency to reason visually. A study developed by Krutetskii (1976) with a sample of mathematically gifted students showed that they used different approaches in problem solving. While analysing the type of reasoning used by those students, Krutetskii (1976) identified three main categories: analytic (non-visual), geometric (visual) and harmonic (use of the two previous types of reasoning). In spite of the existence of different approaches to the same problem, most students prefer to use numerical relations as a support for reasoning, perhaps reflecting the work promoted in the classroom where analytic representations prevail. However, some studies indicate that most students are more successful when they use a harmonic or mixed approach (Noss, Healy & Hoyles, 1997; Stacey, 1989; Becker & Rivera, 2005).

The relation between the use of visual abilities and students’ mathematical performance constitutes an interesting area for research. Many researchers stress the importance of the role visualization plays in problem solving (Presmeg, 2006; Shama & Dreyfus, 1994), while others claim that visualization should only be used as a complement to analytic reasoning (Goldenberg, 1996; Tall, 1991). In spite of some controversy, these visions reflect the importance of using and developing visual abilities in mathematics but teachers tend to present visual reasoning only as a possible strategy for problem solving in an initial stage or, when necessary, as a complement to analytic methods (Presmeg, 1986). Several studies point to the potential of visual approaches for supporting problem solving and mathematical learning. The reality of our classrooms, however, tells us that students display frequently reluctance to exploit visual support systems (Dreyfus, 1991) and tend not to make links between visual and analytical thought (Presmeg, 1986). These ideas imply that the role of visualization in school mathematics should be re-evaluated.
Students’ thinking processes in pattern generalization

There are some studies exploring students’ difficulties and strategies, from pre-kindergarten to secondary school, when solving problems requiring pattern seeking. Their results are discussed in this section.

Stacey (1989) focused her research on the generalization of linear patterns, by students aged 9–13 years old. She classified students’ strategies when solving contextualized linear generalization tasks, whether or not leading to correct answers. Strategies found were: counting, whole-object, difference and linear. In the counting strategy, students counted the number of items in a figure. Those who employed the whole-object strategy used a multiple of a previous value, assuming the problem implied direct variation. The difference strategy consisted of using a multiple of the difference between two consecutive items of the sequence. Finally, students who used the linear strategy applied a linear model to find solutions. In her study, Stacey (1989) concluded that a significant number of students used an incorrect direct proportion method when attempting to generalize.

García Cruz & Martinón (1997) developed a study aiming to analyse the processes of generalization developed by secondary school students. Their categorization of the methods used by these students was based on Stacey’s work. They considered three main categories: counting (included counting the items on a drawing and extending a sequence using a recursive method), direct proportion and linear. They have also classified strategies according to their nature: visual, numeric and mixed. Students who used mixed strategies acted mainly on the numeric sequence and used the drawing as a means to verify the validity of the solution. Results of this research have shown that the drawing played a double role in the process of abstracting and generalizing. It represented the setting for students who used visual strategies in order to achieve generalization and acted as a means to check the validity of the reasoning for students who favoured numeric strategies.

Orton & Orton (1999) focused their research on linear and quadratic patterns with 10–13 years old students. They reported a tendency to use differences between consecutive elements, as a strategy in the generalization of linear patterns, and its extension to quadratic patterns, by taking second differences, but without success in some cases. They also pointed as obstacles to successful generalization, students’ arithmetical incompetence and their fixation on a recursive approach that, although being useful in solving near generalization tasks, doesn’t contribute to the understanding of the structure of a pattern.

In a more recent study, Becker and Rivera (2005) described 9th grade students work after they were asked to perform generalizations on a task involving linear patterns. They tried to analyse successful strategies students used to develop an explicit generalization and to understand their use of visual and numerical cues. The researchers found that students’ strategies appeared to be predominantly numeric and identified three types of generalization: numerical, figural and pragmatic. Students using numerical generalization employed trial and error with little sense of what the coefficients in the linear pattern represented. Those who used figural generalization focused on relations between numbers in the sequence and were capable of seeing variables within the context of a functional relationship. Students who used pragmatic generalization employed both numerical and figural strategies, seeing sequences of numbers as consisting of both properties and relationships.

METHOD

Fifty four sixth-grade students (11–12 years old), from three different schools in the North of Portugal, participated in this study over the course of a school year. The study was divided in three stages: the first corresponded to the administration of a test focusing on pattern exploration and generalization problems; second stage, which went on for nearly 6 months, involved all students in each classroom solving patterning tasks, in pairs; and, on the third, students repeated the test in order for us to examine changes
in the results. These students were described by their teachers as being of average ability and had no prior experience with this kind of tasks. Over the school year all students involved in the study solved seven tasks and two pairs from each school were selected for clinical interviews. Students’ activity when solving the tasks was videotaped and transcribed for further analysis.

**ANALYSIS OF THE PINS AND CARDS TASK**

This is an ongoing study and at present time some of the data is still being analyzed. In this paper we will focus on some preliminary results based on the application of one of the tasks. Along the study we applied a total of seven tasks. They involved near and far generalization and featured increasing and decreasing linear patterns as well as non linear ones. In the selection process we tried to privilege tasks whose nature could lead to the use of different strategies, allowing students to find patterns in either number or visual solving contexts. One of the tasks used in this study was called *Pins and Cards* (see figure 1) and involved the generalization of an increasing linear pattern.

**Pins and Cards**

Joana hangs cards on a board in her room in order to remember her appointments. She uses pins to support the cards as shown in the image.

If she continues to hang cards in her board this way:

1. How many pins will she need to hang 6 cards?
2. What if she was to hang 35 cards, how many pins would she need?
3. Supposing that Joana bought a box with 600 pins, how many cards can she hang in her board?
4. Joana decided to use triangular cards. Knowing that she sticks a pin on each vertice of the triangle and consecutive triangles have one pin in common, analyze the previous questions in this context.

**Figure 1: Pins and Cards task**

The analysis of the work developed in this task allowed us to identify a diversity of strategies, as well as difficulties, that students had also shown on the pre-test. We felt the need to adjust Stacey’s (1989) strategy categorization in order to describe, as accurate as possible, students’ reasoning, establishing four main categories: *counting*, *whole-object*, *recursive* and *linear*. In some cases we considered that a particular category had to be divided in different approaches due to the structure of reasoning presented.

Most of the tasks we designed had a strong visual component, as we can see in the *Pins and Cards* task. Near generalization questions (1. and 4.1) can easily be solved by making a drawing of the requested
term of the sequence and counting its elements, using what Stacey (1989) called the \textit{counting} strategy (C).

The \textit{whole-object} strategy (Stacey, 1989) also emerged from the work of some of the pairs. This approach is associated to direct proportion situations and this particular problem, as others presented along the study, does not fit this model. For this strategy to be adequate, students had to make a final adjustment based on the context. We identified two different ways in which students applied the \textit{whole-object} strategy (W), without any adjustment, leading to incorrect answers: (W1) using multiples of a given term of the sequence; (W2) using multiples of different terms of the sequence and adding them (in this case the requested term is obtained by decomposition, using known elements of the sequence).

This type of tasks can promote the use of \textit{recursive} thinking, especially when near generalization is involved. So it came as no surprise that some students used the common difference between two consecutive terms of the sequence to solve some of the questions posed. We distinguished two situations in which this strategy was employed: (R1) extending the sequence using the common difference; (R2) using multiples of the common difference (as happened with the \textit{whole-object} strategy, for this reasoning to be adequate students needed to adjust the result based on the context of the problem. Thus, in this case, the answer was incorrect).

The \textit{linear} strategy (Stacey, 1989) relates to the use of expressions of the type $an+b$ ($b\neq0$). In this study we identified four categories that are in some way linked to this particular strategy: (L1) identifying an explicit rule that relates the order of a given term of the sequence with the number of elements of that term (in this particular case students “saw” that each card needed three pins and the last one would need four, deducing that the rule was $3(n-1)+4$, $n$ being the number of cards. Other pairs “saw” the pattern differently considering that each card had three pins adding one more pin at the end. Here the rule was $3n+1$); (L2) using multiples of a given term of the sequence and making a final adjustment based on the context of the problem; (L3) using multiples of a given term of the sequence and making a final adjustment based only on numeric relations (this approach is based on the \textit{whole-object} strategy and the adjustment made is disconnected from the context leading to an incorrect answer); (L4) applying a model based on recursive thinking (L4) (in this case, students used multiples of the common difference and made a final adjustment based on the context of the problem).

In table 2 we present the number of answers in each of the categories described above concerning the Pins and Cards task. In some cases we couldn’t categorize students’ answers so those cases appear in the last column, not categorized (NC). This table allowed us to analyze not only the method used to solve each question but also the context in which it was applied.

\textbf{Table 2: Summary of students’ responses}

<table>
<thead>
<tr>
<th></th>
<th>C</th>
<th>W1</th>
<th>W2</th>
<th>W</th>
<th>R1</th>
<th>R2</th>
<th>R</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>16</td>
<td>5</td>
<td>-</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>13</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>4.1</td>
<td>17</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>4.2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>11</td>
<td>-</td>
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<td>-</td>
<td>12</td>
<td>12</td>
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<tr>
<td>4.3</td>
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<td>1</td>
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<td>-</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

As we can see from table 2, when solving near generalization questions (1 and 4.1) the predominant strategy was \textit{counting} over a drawing. The other strategies were also applied but only a minority of
pairs used them, in spite of being highlighted in the existing literature that students focus on recurrence relationships when dealing with patterns (Stacey, 1989; Orton & Orton, 1999). In far generalization questions (2, 3, 4.2 and 4.3) the application of linear strategies prevailed.

When solving this task some students struggled with cognitive difficulties that led to incorrect answers. Some pairs made false assumptions about the use of direct proportion. In these cases attention tended to be focused only on numeric attributes with no appreciation of the structure of the sequence. This happened with strategies W1, W2 and L3, where the only concern was to satisfy numeric relations. The use of strategies based on recursive reasoning wasn’t always made correctly, especially when far generalization questions were involved. The recursive approach through the use of R2 lacked a final adjustment based on the context of the problem, because students only considered a multiple of the common difference, forgetting to add the last four pins or the last pin. Also, when they used linear strategies, the model wasn’t always correctly applied. We have the example mentioned above with the use of L3 and, in some cases, strategy L1 wasn’t totally correct as students added pins and cards in the end. We are convinced that these errors are linked to the extensive experience of students in manipulating numbers without meaning, making no sense of what the coefficients in the linear pattern represent.

According to Presmeg (1986) a strategy is considered visual if the image/drawing plays a central role in obtaining the answer, either directly or as a starting point for finding the rule. In this sense we believe that counting and linear strategies L1, L2 and L4 are included in this group. Counting was always a successful strategy but only useful in solving near generalization questions. Drawing a picture of the object required and counting all the elements is an action used in near generalization questions and does not lead to a generalized strategy. The linear strategy L1 lead to a correct answer when students based their work on the structure of the sequence, making reference to the way pins were distributed through the cards. Strategy L2 was only used by one student but did not led to a correct answer. We think that it involved a higher level of abstraction in visualization, difficult to attain in this stage of the study. Finally, only three pairs of students used linear strategy L4. All of these students reached the correct answer. They considered that each card had three pins and made a final adjustment considering that the last card would need one more pin.

DISCUSSION

In this research, the main purpose of using pattern exploration tasks was setting an environment to analyse difficulties presented by students, strategies emerging from their work and the impact of using visual strategies in generalization.

As for the research questions outlined earlier in this paper, we can now make some observations: (a) students presented several difficulties in solving problems involving pattern exploration, especially when they had to generalize; (b) students achieved better results in near generalization questions than on far generalization questions; a variety of strategies were identified in the work developed by students, although some were more frequent than others, like counting (mostly on near generalization) and linear (more frequent on far generalization); (c) some of the pairs worked exclusively on number contexts using inadequate strategies like the application of direct proportion, using multiples of the difference between two consecutive terms without a final adjustment and mixing variables, in this case, pins and cards; (d) visualization proved to be a useful ability in different situations like making a drawing and counting its elements to solve near generalization tasks and “seeing” the structure of the pattern finding a linear strategy to solve far generalization tasks. So we think that it’s important to provide tasks which encourage students to use and understand the potential of visual strategies and to relate number context with visual context to later understand the meaning of numbers and variables.
It is our strong belief that evidence about the ways children work with patterns may contribute to significant teaching decisions, about the ways to increase mathematical knowledge in our students and particularly of algebraic thinking.

REFERENCES


Abstract

This paper intends to report a part of an ongoing doctoral study centred in a professional development programme in mathematics for primary teachers that is taking place in Portugal two years ago. Four teachers involved in the programme are being followed, during two years, in their professional activity. The research design is qualitative case study, aiming a description and interpretation of the influence of the programme in their mathematical and didactical knowledge and classroom practice. As the actual phase of the study is still data collection, we only report some preliminary ideas collected in the interviews and in the observed classes during the first year to one of the participants that reflect her views and her knowledge evolution within her attendance of the programme and the way she translated this influence in her class planning and interactions with students. The main finding till now is the crucial importance in professional development of the proximity with classroom practice.

Teacher’s knowledge

Nobody contests that teachers need to know mathematics to teach mathematics well. What remains difficult is to decide what knowledge must teachers possess and what must be its nature. Shulman (1986) set up a special kind of knowledge, which he called pedagogical content knowledge, that has a mixed nature and may answer the question. Actually, pedagogical content knowledge in Shulman’s perspective is still content knowledge, but includes representing and formulating subject matter in ways that students can understand it. Later, Ball, Bass, Sleep & Thames (2007), referring to mathematical knowledge for teaching, define specialized content knowledge as being still content knowledge but demanding an explicit comprehension and detail not needed when one simply knows a mathematical topic or procedure. School mathematics must not be reduced to routine facts and procedures, according to international standards and experts (NCTM, 2000). But literature shows us that the shifting to innovative teaching practices stressing student comprehension and involvement will only be successful if teachers’ mathematical and pedagogical content knowledge is sufficient to construct connections among concepts in the new approach (Ma, 1999; Kaput & Blanton, 2001; Warren, 2006). Ma (1999) claims a deep understanding of fundamental mathematics in order to teach well. This author defines, among others, a feature of teacher knowledge she calls connectedness that prevents a fragmented teaching of isolated topics. Yet, just studying and defining what mathematics teachers must know is not enough to solve this problem. Ball, Lubienski & Mewborn (2001) claim that researchers have lack to know how teachers use mathematics in class in order to understand their practices and discover the mathematics content that is invisible at other levels.
Primary education in Portugal

In Portugal, the low levels attained by Portuguese students in national examinations and international studies like TIMSS in 1996 and PISA in 2003 suggest that something must change in school mathematics. One may question what reasons lead to unsuccessful efforts in teaching and learning mathematics. This should obviously refer, among other factors, to the need of a high quality teacher education in mathematics. Moreover, teachers of primary levels have particular weaknesses in mathematics education (Ponte, 2001).

Almost till now there wasn’t in our country any support to primary teachers. Nevertheless, a mathematics teacher education programme was established in Portugal two years ago, in all the country, by proposal of the Ministry of Education and implemented in each region by universities or schools of education, and aims ultimately for a better mathematics learning of 1st to 4th grade students (ME, 2005). Although it is a national programme, its attendance is not compulsory.

Our presentation refers to a doctoral study that one of us is conducting about mathematical, didactical and curricular knowledge of primary teachers that are attending an in-service mathematics teacher education programme and the analysis of the influence this programme has on their classroom practice. Our interest in this theme is justified by our personal involvement in the programme in the last two years.

The programme intends to develop didactical knowledge directly connected with teaching practice, involving mathematical knowledge and curriculum management associated with tasks and materials selection and its application in the classroom. Although much importance must be given to mathematical knowledge improvement, it is asserted that teacher practice must be the starting point of teacher education. The consideration of the concrete needs of the teachers relating to their teaching practice and collaborative work among peers and instructors is also stressed in programme principles. So, this programme sets three main dimensions, which are: (a) training sessions in small groups (8–10) where tasks are suggested and experienced, related mathematical topics are deepened, questioning is discussed with the goal of class planning; (b) classroom experience with assistance through class observations by the instructors; and (c) reflection about classes with the instructor and then in the working group. We have to say that class observation is not usual in Portugal in teacher education after the pre-service teacher training.

Officially, in Portugal, the main goals of school mathematics are problem solving, reasoning and communication (ME, 2001). However, most of the Portuguese primary school teachers have a traditional view of teaching, where the routine tasks dominate. This programme proposes to invert the referred teacher practices when recommends the improvement of problem solving and investigative tasks with students which, besides promoting concept understanding, reasoning and communication development, promote making connections among ideas and concepts. On the other hand, it prescribes the planning of teaching sequences and encourages the sharing of teaching experiences among teachers.

In this context, our aim is to analyse the possible impact of the programme in mathematical and didactical knowledge of primary teachers and the consequences of that influence in their classroom practice and in student achievement.

Professional development: the role of supervision and reflection on practice

Professional development is nowadays considered a priority for evidence of many research studies relate it with practice changing and student achievement (Sowder, 2007). But teacher training was traditionally identified with unconnected courses or workshops and this option revealed unsuccessful (Ball, Lubienski & Mewborn, 2001) because it is not enough what teachers know, but if and how they use such knowledge with their students. So we currently assist to a paradigm change: recent programmes stress
the importance of mathematical and didactical knowledge, but focused on classroom practice built on student thinking, on reflection on practice and on interaction with peers.

According to Glickman, Gordon & Ross-Gordon (1998), direct assistance to teachers as a task of a supervisor includes, among other forms, clinical supervision. It is a deliberative and systematic intervention in the instructional process, creating a productive tension between willingness and reality and intending to improve instruction. The structure of clinical supervision has five steps: (1) Preconference with the teacher; (2) Observation of classroom; (3) Analysing and interpreting observation; (4) Posconference with the teacher; and (5) Critique of previous four steps.

Following in the track of Schön’s work that maintains the improvement of teachers’ knowledge taking roots in practice and in a reflective process about practice (Schön, 1983), a great number of researchers recently developed teacher education programmes where the value and importance of reflection on one’s practice and also of sharing and profiting from each other’s experience is stressed (Hodgen, 2003; Olson & Barrett, 2004; Warren, 2006; Heuvel-Panhuizen and Goeij, 2007; Silver, 2007).

Methodology

The study reported in this presentation is part of ongoing research on the mathematical and didactical knowledge of primary teachers involved in an in-service professional development programme.

Participants and setting

Four teachers involved last year (and three of them this year) in the teacher education programme are being followed, in their professional activity, last year and this year, aiming a description and interpretation of the influence of the attendance of this programme in their mathematical and didactical knowledge and classroom practice. The nature of the study problem and the research questions made us decide to choose a qualitative case study research design. Case studies are appropriate to produce a descriptive account of phenomena within a real-life context (Yin, 2005). According to Merriam (1988), a qualitative case study is an intensive, holistic description and analysis of a single entity or phenomenon. Case study is particularistic, in that it focuses in a specific situation, and relies heavily on inductive reasoning in handling multiple data sources because it focuses on process, understanding and interpretation.

These cases were chosen because we believe that they can contribute for a better comprehension of the phenomenon under study (Stake, 1994). The criteria to select them were variety in features such as: age, initial or complementary education, professional experience, type of work at school, type of class (one or more years of schooling) and type of attendance in this programme (beginning or continuation).

These four teachers are being followed last and this year in their classroom practice in mathematics. In addition to being the researcher the first author was also last year their instructor in the programme (and is this year for three of them), and this means that she meets them in small groups twice a month to help planning classes, discuss strategies, make suggestions and analyse classroom tasks and reflect about the classes meanwhile observed.

Therefore some questions were raised to be answered by this study:

- How does the in-service teacher education Programme contribute to improve subject, didactic and curricular knowledge of primary teachers in the district of Viana do Castelo?
- How does subject, didactic and curricular knowledge of primary teachers relate to their classroom practice?
- What is the impact of the Programme in classroom practice of those teachers, particularly relating to the type of tasks selected for students work?
What are the teachers' views about mathematics both as a science and as a school discipline and how does that affect their practice?

**Data collection and analysis**

The data collection consists of classroom observation, interviews and document analysis.

During these two years the first author will be observing four-five mathematics classes of about 90 minutes per teacher. These classes were and will be videotaped and transcribed. In addition field notes are being used. After each class there is a conversation between the teacher and the first author during which we reflect about some features such as pupils’ work, teacher’s role, reaction to and exploration of the tasks, resources, mathematical activity of the pupils. After transcription, and based on it and on field notes, the first author makes a written report of each observed class regarding the same points in two different features: the observed facts and the researcher comments.

During the first year three interviews to each participant have taken place: in the beginning of the school year, in February and in the end of the school year. All these interviews are semi-structured and were audiotaped and transcribed.

During the second year there is a shifting to a more autonomous work in preparation of classes and its presentation to the work group. We suggested them to anchor their work on algebraic reasoning for it is a topic not much considered in primary grades that is now acquiring a growing importance and is being theme of analysis and discussion in group work sessions. The interviews will be less formal and will more explicitly focus on mathematical content in classroom, questioning and analysis of student artefacts in order to understand their thinking.

**Some preliminary results: the case of Silvia**

This study is still in the phase of data collection.

We will only report some preliminary ideas collected in the interviews and in the observed classes during the first year to one of the participants that reflect her views and her knowledge evolution within her attendance of the programme and the way she translated this influence in her class planning and interactions with students.

**Silvia in the beginning of the programme**

Silvia is a 43 years old teacher that is working 19 years ago. She was born in a village where she still leaves. She works in a rural small school that has only two classes. She had 12 years of mathematics learning before the preservice teacher education. She was not a good math student and had with math a mixed relationship of “love/hate”, depending on the teacher of that year and on her achievement.

She recognizes a very weak math instruction on what concerns “what really interests for my formation as a primary teacher”. The curriculum, she claims, was very theoretical and, as every student must have been studying at least for 9 years mathematics, the level of subject matter was similar to 10th grade. In the first interview, she gave the example of addition with transport: “I would know, at that time, how to explain to a student how to sum with transport. I knew it for me but not to explain to my students”. She referred the lack of specialized content knowledge claimed by Ball et al. (2007). Many years later Silvia has had complementary specialized education in mathematics and Portuguese language.

Concerning her views about mathematics teaching and learning, Silvia mainly stresses thinking and reasoning development, although she also refers practical features in future life. She recognizes the need of

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1 Fictitious name.
training skills but stands up for habits of thinking and reasoning since the first years to create a positive image of mathematics. Silvia defines in the first interview a typical mathematics class as a short subject matter exposition followed by practice (sheets of exercises, textbook) and mainly individual work. She maintains the importance of use of manipulative materials to facilitate understanding. She complains of having two grades in the same classroom for it is much more difficult to support all children in different tasks. Sometimes children work in pairs or in small groups, but Silvia refers that in such type of organisation little children are grouped but don’t work collaboratively.

Her main difficulties/needs in the beginning are: (1) to know more adequate strategies of teaching/learning; (2) to know how to explore manipulative materials to lead children towards a better comprehension of mathematics and a larger level of abstraction; (3) to know how to teach through problem solving; she considers its importance but has insecurity on how to do it; and (4) to “dress” the new roles of the teacher: propose, organize, make questions.

Concerning the main reasons for programme attendance, although Silvia had attended a short time ago a complementary specialized education in Mathematics and Portuguese language, she considers that in that course she “opened her eyes” to new ways of teaching and viewing Mathematics and she remained very interested but had no time to develop new practices. Now she wants to learn more about materials and strategies for directly using with her children. Silvia also refers the need of exchanging ideas, not to be alone, not to fall into routine. This teacher stresses that she is almost always alone because the other teacher in her school has not the same grades (actually Silvia has, at the beginning, 1st and 2nd grade and he has the other two grades) and she views in the programme attendance an opportunity to work with others.

**Silvia within the programme**

At the end of first year of programme attendance, Silvia has a very positive opinion of this programme, stressing the following features: (a) Comparing to other teacher education programmes, the most important difference is doubtless the existence of supervised classes. She assumes having felt some fear or uneasiness in the beginning. However, she considers that the good relationship with the instructor led to another view: the goal of the observed classes is teaching and learning improvement and the presence of the instructor is well received as a support and a resource to discuss in the end how things happened and ways of changing; (b) Relating to the small group work twice a month, she stresses the importance of being very practical, turned to teachers’ real needs. Quoting Silvia: “To learn theories we read a good book, but what we do here we can’t learn in books!” She also gives value to shared reports of classroom experiences with the colleagues. In the end of the first year, Silvia is a confident teacher. She claims that the mathematical knowledge improved in this programme makes her feeling comfortable with subject matter and having more flexibility to change between subjects; (c) She confesses she likes very much this mathematics, referring the tasks proposed in those sessions and its exploration, and she recognizes that her new feelings towards mathematics reflect on her students that are also very enthusiastic.

As teaching style, a feature Silvia revealed along time and was discussed with the instructor is her exigency with students in terms of mathematical knowledge and reasoning. Tasks were a great challenge to her 1st and 2nd graders. She admits she likes to lead children to their limits, not confining them with easy and infantile tasks. On the other hand, the improvement of confidence allows Silvia to lead children relating ideas and concepts and acquiring number sense.

We report the following episode that shows a way of relating and extending of mathematical ideas:

One day they worked around palindromes, using a task suggested in the working sessions.

The next day, they were learning the numbers in the eight hundreds and the teacher suggested that they counted since 800 jumping in five. One of her children said then:

Student: We will not find any palindrome!
The teacher asked:
Teacher: Why do you say that?
The little girl then explained:
Student: It must finish in an 8 and with this jumping we only find numbers finishing in 0 or 5!
The conversation was then extended to other students and other situations where it was possible to find such a number.

We chose another classroom episode, this turn in a geometry lesson, trying to illuminate Silvia’s way of working fostering children comprehension and communication skills:

The children were given card squares. The teacher asked the children to make a single cut in the square and analyse what they obtained.
Teacher: You must use the rule to get a right cut!
A child traced a diagonal and cut. The teacher asked the name of the traced segment, told it to the students and asked one what figures had he obtained.
Student: Two triangles.
Teacher: What kind of triangles?
Student: Equal!
Teacher: How do you know that?
Student: Putting one on the other.
Teacher: Like this?—and the teacher simply puts one on the other without care.
Student: No, we have to make them coincide!—and he showed that operation and confirmed the coincidence in face of all the class.
This way, the first grader could deepen and explain the concept of congruence.

Finally, we describe another classroom episode involving a problem where the main goal is discovering a pattern, that illustrates de importance of the use of suitable representation:

Observe the figure.

How many points are there in the first V? And in the second? And in the third?
Draw the two following Vs.
Is there any V with 48 points?

Student 1: It is always plus two.
Teacher: Why?
Student 1: Otherwise it gets “tortuous”.
Student 2: Or plus four…
Student 3: Always even.
Student 4: But an even doesn’t get a V.
Student 1: It is always in the top of the V, plus two.
Teacher (aware of the confusion): It requires a table to organize your ideas. Let’s go!

<table>
<thead>
<tr>
<th>Fig. number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Points number</td>
<td>3=2+1</td>
<td>5=4+1=</td>
<td>7=6+1=</td>
<td>9=8+1=</td>
<td>11=10+1=</td>
<td>…</td>
</tr>
<tr>
<td></td>
<td>=2x2+1</td>
<td>=2x2+1</td>
<td>=3x2+1</td>
<td>=4x2+1</td>
<td>=5x2+1</td>
<td></td>
</tr>
</tbody>
</table>
The registration of the values in a table followed by decomposing them in suitable pieces facilitated the comprehension of the pattern allowing generalization.

Discussion

The description made above shows us a teacher that has a certain mathematical background, having nevertheless some needs and difficulties in her mathematics teaching practice that she identifies and wants to overtake. Those needs mainly concern the ways of putting into practice some features of mathematics teaching that she previously knows that are really important. Within the first year of instruction, the instructor noted a great professional development in this teacher, mainly in her subject matter management and self-confidence improvement, and also in the enthusiastic way in which she involves herself and her students in mathematical tasks. In the reflection of the last observed classes, the teacher was wholehearted with the new way of teaching mathematics and feeling more and more easiness in working this way. She reinforced that her very students ask her to give them more of those challenging tasks. The need for applying in the classroom the tasks proposed in the work sessions is crucial. Actually, Silvia confesses that, although she had acquired a new view of mathematics teaching in the complementary course, she didn’t apply the gathered suggestions because she had no time or motivation.

Although this report is a specific feature of a part of one of the four intended studying cases, we think it can give an idea of what is at stake in this point: this teachers involve incomparably more themselves and their students in rich and challenging mathematical tasks if they actually can’t help doing that for it is one of the requirements. The nearness with classroom practice is the most important feature of this programme.

References


Reflective Education
Let’s find out!—Creativity in research.

Elsje Huij
Hanzehogeschool Groningen, The Netherlands

Last September, the Hanze Hogeschool Groningen started with renewed courses in the Teacher Trainer Program, this time with an emphasis on research. In the following, I will share some thoughts on the importance for teachers to learn to conduct research.

The teaching role is very dynamic and divers. Although there are some basic, very important principles, there are no strict guidelines or recipes how to handle the diversity of the Dutch primary education. Teachers have to find out what will be working in a certain context on a daily base; sometimes handling ad hoc to save the day.

When we seek to enhance the quality of education in the classroom, we have to start by upgrading the development of the student and extending the quality of the professionals. In the schools, this could lead to exploring other options, for example starting new curriculum development. While doing research in school, the professionals will acquire more knowledge and should be able to share this, through publications of achievements and results.

In order to prepare our students, we’ll be working with the book: “Ontwikkeling door Onderzoek” (eng: Development through research), written bij T.Kallenberg1, along with offering them a real life research context: the primary school. Both the students and the elementary schools are participating in the process.

Conducting research requires being able to ask questions: How can we enhance the results of the reading skills? How can the school work together with the parents? What kind of options do we have in case of disinterest for math?

In his book, Kallenberg advises students to define a clear research question, followed by a plan of handling. (What can be done better, with whom, why and when?) In order to find the fitting answers, the growing collection of data will need to be analysed. Following, to arrive at conclusions, the research process and finding are to be rapported. Sometimes, these conclusions can be the start of a new research question: the cycle of research.

What does this mean to the future teacher? Do they need to develop an exploring mind? Do we treasure the exploring mind? How can we stimulate an exploring attitude? Do we participate in some research ourselves? How come that young children already have this exploring mind and that after a couple of years of education the pupils ask for certainties and do not even know anymore how much fun it has been to explore and learn by nature. What does it mean for the teacher-training program? When we teach students to treasure the exploring mind, at least we have to embrace the same thought. Teach what you preach! Draw assignments that enhance the eagerness to explore. Tell students about the creative mind as a handy tool. Tell them about fluency and flexibility in relation to originality. Explain that creativity has levels too! That creating means making, but that there are levels of complexity in these creative processes. Tell them that problem solving will not automatically lead to originality, but often to a quick solution.

1 Kallenberg, T. e.a.(2007) Ontwikkeling door Onderzoek. Utrecht, Thieme Meulenhoff.
In a world, where finding time for new things is really difficult, we should be aware of the following: when we will be able to embrace the possibilities of the new and research based findings, we are not only doing ourselves a great favour, by enhancing the quality of the professionals in education, but more importantly, we will contribute to the future by stimulating the exploring minds in primary education.

Elsje Huij, Hanzehogeschool Groningen, The Netherlands
ETEN, Liverpool, April 25Th, 2008
Mind Maps: Indicators of learning

Barbara Graham
Ball State University, USA

Introduction

The need for powerful teaching is increasingly critical in contemporary society. Preparing citizens with the knowledge, skills, habits, and dispositions to contribute to a democratic society is an extremely complex undertaking, and one that requires teachers who can create and foster conditions for learning for all students. Not only do teachers need to organize and control learning environments and provide useful information to students, they must also be increasingly effective in enabling a diverse group of learners to learn complex material.

In the US, under Bush regime and No Child Left Behind (NCLB) legislation, institutions that prepare teachers for the nation’s schools are being held accountable for student learning. Institutions must provide evidence of comprehensive and effective programs that equip teachers for complex and diverse classrooms. Faculty members in many institutions must demonstrate that their teaching has resulted in learning. In other words, teacher educators must demonstrate that their preservice teachers possess the knowledge, skills, and dispositions to promote learning in the K-12 system. In addition to these overt calls for accountability, policies introduced by the federal government indicate a distrust of teacher education (Post, Wisel Henk, McIntyre, Hillkirkm, 2004; Zeichner, 2006)

The NCLB context offers an increasing number of routes into teaching for individuals who possess content area expertise as demonstrated by their undergraduate degrees and scores on standardized tests, such as PRAXIS 1 and PRAXIS 11. Many states have created an avenue, Transition to Teaching (TTT), for qualified individuals with undergraduate degrees in fields outside of education to become teachers. At our institution, the Transition to Teaching program (TTT) is an intensive campus and field-based program designed to prepare highly qualified graduate students for public school classrooms. Students in the TTT program vary in age, previous careers, gender, cultural background, academic preparation, socio-economic status, ideological perspective, and school experiences.

Given the widespread teacher shortage, the increasing number of “transition” or alternative routes to certification, as well as the inevitable connection between belief systems and new knowledge acquisition, there is a pressing need for more information about the learning trajectory of post-baccalaureate pre-service teachers.

In designing the curriculum for the Transition to Teaching program, we deliberately included a variety of activities and assignments that would allow non-traditional pre-service teachers to access their beliefs about students, teaching, learning, classrooms, and content in order to make them explicit and subject to reflection and possible revision. Several of these activities, such as writing responses to assigned reading, crafting currere narratives, maintaining reflective journals, and creating mind maps helped students uncover some of their assumptions and document their evolution throughout the program.

Mind maps, in conjunction with other activities that fostered reflection, provide rich sources of data about student learning. When used regularly and at strategic intervals through a program, they document students’ changing cognitive structures as they accommodate new information, experiences, and knowledge into their existing conceptual frameworks. Faculty, in using mind maps to inform their teaching, are able to be more receptive to the evolving understanding of students and target their instructional time to meet student needs. Mind maps also provide opportunities to conference with individual students to explain changes in the maps.
Theoretical framework

Concept mapping (developed by Novak, 1990) can be a useful “metacognitive tool, promoting understanding in which new material interacts with the student’s existing cognitive structures” (Kinchin, Hay, & Adams, 2000, p. 44). Concept maps focus on how individuals integrate new learning into their existing cognitive structures by making connections between concepts in order to integrate information into memory (Kinchin, De-Liej, & Hay, 2005). Constructing a concept map offers individuals opportunities to represent how they perceive and understand phenomena. Halford (1993) suggests that the “ability to construct a concept map also illustrates two essential properties of understanding, the representation and the organization of ideas” (in Kinchin, Hay, & Adams, 2000, p. 44).

Concept maps (Novak, 1990) demonstrating hierarchical relationships among concepts, have also been used to determine whether students have learned topics or are able to use specific concepts to enable further learning (Stoddart et al., 2000). Using maps as instructional tools helps students clarify their understanding and make connections between concepts explicit as well as to assess prior student knowledge, to identify gaps in student knowledge, to help teacher education students identify key concepts to target in their teaching, and as an assessment tool to determine the extent and quality of new connections students are able to make after instruction (Mason, 1992, in Stoddart et al., 2000).

My use of mind maps to document changing belief structures and conceptual changes in non-traditional pre-service students emerges from the potential of schema representation to capture changing perspectives and developing understanding. Several aspects of schema representation—the visual representation of understanding, the organization of that understanding, the possibility to demonstrate how that understanding could be used in students’ future practice, and the potential of visual representations of cognitive structures to enable dialogue with students—appealed to my interest in documenting meaningful student learning.

Meaningful learning is usually characterized by three traits: “the learner has prior knowledge that is relevant to the new learning; what is to be learned is presented in ways that have meaning; and the learner must choose to learn meaningfully” (Hay, 2007, 41). The TTT program provides opportunities for meaningful learning: students had chosen the rigorous program, the new information was structured to build on their previous experiences with schools as students and parents, and the program was structured to include interactive seminar discussions, academic classes as well as carefully structured and guided field experiences. Kinchin et al. (2000), building on the utility of concept mapping to demonstrate changes in individual knowledge and understanding, have shown how the qualitative analysis of concept maps can reveal patterns of knowledge structure indicative of different patterns of knowledge and understanding. Rather than measuring change in quantitative ways or validating change by comparing individual maps to maps produced by “experts” in the field, their work with concept maps “implies a focus on individual approaches to learning rather than change as a process of development specified by goals established by teachers” (Hay, 2007, 42).

Concept maps capture student understanding of important concepts but provide student flexibility in portraying interrelationships among concepts and beliefs. I surmised that asking students to create maps of their understanding of the complexity of teaching several times throughout the program would allow them to document that understanding as it developed. I planned to use the information from the maps to structure classroom activities, select topics for assigned readings and themes for classroom discussions that would propel them along their professional journey, as well as focus my classroom observations of their practice (student) teaching and my weekly conferences with them.
**Method**

The research was conducted during the second module of the TTT program when students are based primarily in an urban school. During this 16-week block, students observe and participate in urban classrooms three days each week and twice weekly attend seminars and classes taught in the school. An important aim of the TTT program at our institution is to produce thoughtful teachers and reflective problem-solvers who understand the social contexts of school communities as well as promote critical thinking, student autonomy, and analytic skills through a variety of instructional methods. Students in the program maintained daily observation logs in which they recorded their impressions and wrote journals twice each week. In their journals they reflected on their observations, connected their observations to the assigned readings and projected how they would use that ‘connected’ knowledge in their future classrooms.

At the end of the second week of the program, I asked students to create concept maps of their understanding of “teaching.” There is a wide variety of styles and approaches for implementing concept maps (Romance & Vitelo, 1999). I introduced the mapping activity by asking students to finish the sentence, “Teaching is . . .”. Individually, students created their personal lists of phrases and important concepts. As a class, we distilled a group list of ideas before classifying them into concepts and subcategories. We then arranged our concepts, showing relationships through connecting lines. In effect, we created a collaborative mind map.

I then asked students to create their own maps. I did not place any restrictions on how the maps were to be drawn, other than to reinforce the need to clearly show relationships among concepts. I emphasized that the maps were to help them record their thinking and that the maps could be used, in conjunction with their weekly journals, as data for the final project describing their professional and personal growth. The purpose of the assignment was to measure change over time in the context of both practical and theoretical learning as well as how the learning of new information was being integrated into existing cognitive structures. The activity has several key components: students used concepts from three sources—the list generated in class, the ideas discussed during our seminars, as well as others that had significance for them; they chose their preferred medium of presentation; and they developed their own system for representing and organizing their understanding of teaching. As I mentioned before, they indicated relationships among and between concepts by the use of connecting lines. The first map would represent the students’ early understanding of the complexity of teaching. Subsequent iterations, after observing and participating in classrooms, should demonstrate changes in their understanding. Students knew they were to explain and discuss their maps and professional growth with me at regular intervals. They also knew that developing the ability to reflect on their learning and their teaching practice was an important program goal.

Before analyzing the maps, I developed some simple criteria to distinguish between deep and surface learning. To identify meaningful learning, I used the following criteria:

- The second and third maps must show concepts that had not been included in the first map
- The second and third maps must show connections to prior knowledge in ways that are meaningful (that the connections provide meaning in the mind of the map-maker
- The overall knowledge structure of the maps would include more details, and organize the material more clearly

To identify surface learning, I expected change in the number of concepts used but little change in the organization of those concepts. I predicted there would not be a need for a third category, of non-learning.
Results

The data consisted of 45 concept maps, three for each TTT student; the first map was drawn early in the module after an intensive two week block of seminars and activities, the second one was drawn after six weeks of classroom observation, and the final one was submitted at the end of the sixteen week module. For this paper, I will include maps of three students, using pseudonyms for the names of students. In the following section, I introduce the students, provide a brief sketch of contextual factors, and interpret their maps.

Carl

Carl’s first attempt at the assignment was a list of ten words: communication, caring, inspiring, bulletin boards, chalk boards, lesson plans, leadership, and low pay. The fact that he had not transformed his initial list into the graphic format of the map surprised me. He, unlike many of his colleagues, had several years of experience working in schools as assistant coach of the high school basketball team, had regularly substituted in that school, and announced the high school games on the local radio station.

I sought a conceptual framework or organizing structure for his list, imposing my understanding and structure on his words. The first three words describe teacher behaviors: teachers communicate with students, they demonstrate care, and they inspire. The next few words refer to tools that teachers use in their instruction. I grouped “leadership” with the first three words describing teacher behavior, leaving teacher compensation as a separate category.

When we met to discuss his list, Carl confessed that he had not completed the assignment because he did not have access to a computer at home. He also mentioned that he felt constrained by having to draw his ideas since he felt more confident in his ability to express his thoughts in textual form. He proposed asking one of his fellow TTT participants for help with technology. He also mentioned that he had not understood that he could include the ideas we had generated in the class brainstorming session.

In his second and final attempt at graphic representation of his teaching, Carl managed to transform his list of ten words into a schema representation. I could not discern a coherent structure organizing his. He does differentiate between main ideas—assessment, communication, tools, scholarship, and dedication placed within the ovals—and secondary ideas shown within rectangular boxes. However, he does not indicate relationships between concepts nor does he seem to connect the concepts on his map to either his classroom observations or to topics or concepts explored and introduced in his seminars.

Overall, there is little evidence of gross conceptual change between Carl’s initial list of words and the map drawn at the end of the sixteen-week module. Despite my earlier prediction that a category of non-learning would not be necessary, I include Carl’s map as an example of non-learning. Carl’s initial, brief list, of terms focused primarily on technical aspects of learning. His map, submitted twelve weeks later, did not demonstrate significant conceptual changes in his understanding of teaching.
Larry

Larry, a Biologist with several years of laboratory experience, had used concept maps in his previous job. His map places “education” rather than “teaching” at the center of the map. Education, for Larry, is both condition and process.
Two phenomena grabbed my attention: Larry had placed Education (not teaching) at the centre of his map and he had linked education to the student and not the teacher. He had connected the condition of education to the teacher and not the student. His map introduced several concepts but the directionality of his connections is not apparent. The distinction in his linking lines between education as “condition” and education as “process” intrigued me. Larry had been reluctant to complete this assignment. His weekly journals tended to describe what he had observed in school. I had wondered if his disciplinary perspective, that of a laboratory scientist, was constraining his willingness to analyze. He much preferred to discuss his observations during our seminars than to develop his ideas in text.

During the conference to discuss his map, Larry mentioned that he feared he had simplified education too much and stated that he was not at all happy with his first attempt at representing his ideas. He said that he had struggled both to find important concepts as well as to create links between the categories. His map shows his attempt to link the processes of education both to content and formal knowledge as well as to processes such as communicating, learning, demonstrating, and assessing.

Figure 3: Larry, Map #2

Larry’s first map included the overarching notion of education as condition and process. Both condition and process depend on communication, learning, and assessment; teachers and students are involved via methods, content, structured thought, and knowledge. In his second map, Larry moved to a multi-dimensional portrayal of teaching. This map demonstrates a more nuanced understanding of the inter-relationships between contextual factors, such as subject area and teacher decisions about instruction, facilitation, textbook choice, and classroom space. The second map clearly shows his attempt to capture the complexity and immediacy of classroom life. He has linked concepts with lines and phrases to demonstrate the relationships among concepts.

Larry had assumed responsibility for the laboratory portion of instruction and began to experience how the physical space of the classroom influenced both the learning environment and learning outcomes. The lab was too small for the number of students. That physical reality forced him to group four students at stations designed for two; his instruction, his interactions with students, and the amount of guidance he could provide were constrained by the size of the lab. He realized that despite the press for standards and accountability, students may need accommodations and adjustment to help them learn and that
his instruction and the assessment tools he used would have to be more flexible that he had previously imagined

**Mary**

Mary brought several years as a journalist, and her experiences as mother of two adolescents to the TTT program. Her first map provides evidence that for her, teaching is more than a technical task. She introduces teaching as the responsibility of both the teacher and students and indicates that both the teacher and the students are learners. To be a learner, individuals must embody such traits as flexibility, reflection, engagement, enthusiasm, and organization.

![Figure 4: Mary, map 1.](image)

Her second map, drawn a few weeks later, contains more concepts but she has not appreciably changed the overarching framework. What she has changed is the position of the learner. Moreover, she has prominently positioned the notions of mutual respect and interest. Some hierarchical shifts in understanding—enough to demonstrate surface learning—are visible.

![Figure 5: Mary, map 2.](image)
Figure 6: Mary, map 3.

Mary’s third map dramatically records the transformation of her understanding about teaching. She places learning at the top of her map, suggesting that learning occurs when students and teachers are engaged in meaningful work, big ideas, and important concepts. Traits that both students and facilitators share include commitment, respect, communication, trust, and enthusiasm. Although some of these words appear on her previous maps, Mary places them very deliberately on her final map. She also submitted an explanation of her map, developing connections between concepts and explaining the organizational framework for her ideas. Her role in the classroom had changed significantly; she was now planning and teaching classes in English and journalism. She had mentioned several times that her mentor teachers relied on introducing a topic and providing worksheets for students to complete. Her goal was to incorporate more authentic assignments into the curriculum. Mary spent several days developing strategies to hook the interest of her students. The shift, visible in her maps, symbolizes the shift in the nature of her classroom participation—she moved from observing to teaching, finding new ways of representing her teaching, differentiating it from her previous models that she had developed from her academic background and her classroom observations and participation. Her third and final map demonstrates evidence of meaningful learning.

Discussion

Of the 45 maps submitted, I identified ten examples of meaningful learning defined as an increase in concepts and more hierarchical differentiation in the connections among concepts. I also identified twenty examples of surface learning, where knowledge structures appeared to remain quite static.

The mapping activity was one of several activities designed to help TTT students access their prior knowledge and beliefs about teaching and learning and monitor how they were incorporating new knowledge into their conceptual frameworks. Students used their daily observation logs to collect information about classroom events, teaching styles, school procedures, assessment practices, and classroom organization. Their weekly reflective journals provided some distance for the students to reflect on their
observations and connect them to our seminars and class discussions where we focused on issues of social justice, pedagogical strategies, instructional planning, and assessment.

Teaching, however, requires more than propositional understanding of concepts; it requires sophisticated skills of identification, problem solving and negotiation that are difficult to capture in either graphic or textual representation. Several TTT students reported that they kept their maps on their desks during their student (practice) teaching experience to remind them of what was important to them about teaching. They consulted their maps between classes, at times to remind themselves of the complexity of their work, at other times to refocus their classroom actions to align more closely with their model of teaching. I used the maps as an additional observational guide to discuss their teaching during the practice (student) teaching semester. A future adaptation of the mapping exercises might be to determine whether students who were able to demonstrate meaningful learning in their maps were able to demonstrate that learning in the classroom.

The data presented here provide empirical evidence of meaningful, surface, and non-learning. They suggest that maps may be used to measure and typify the quality of student learning. They certainly underscore the individual nature of student learning and remind us that students do not necessarily progress through developmental stages prescribed by others. The maps provide additional information to instructors, information to be used to enhance instruction. The graphic format provides a representation of concepts and how students perceive the interrelationships among them. When students demonstrate surface learning, the amount of information about a subject increases. Students are able to apply that information to immediate tasks or to similar contexts. While increasing the quantity of information is an important element in learning to teach, there is no guarantee that the information is transferable to particular classroom contexts. Students demonstrate meaningful learning by relating new information to their prior knowledge, applying that knowledge in a variety of situations and contexts, and when long-lasting personal change occurs (Hay, 2007).

This small experiment has demonstrated that the making of meaning can be measured against defined sets of criteria. The next step would be to visit the classrooms of TTT students over time to determine if the understanding captured in the maps transferred to different contexts and whether it had endured over time. These tentative results need to be verified by others interested in investigating the use of mind maps as indicators of meaningful learning.

References


An introduction to synectics: The concept and the theory behind it

Although avenues of reflection are not the same for each person, people do reflect continuously whether in a self-initiated fashion or through an automatic, circumstantial, or forced manner (reflection-in-action) (Schön, 1983). For those of us who value self-initiated reflection as educators, a long-existing yet oft-forgotten brainstorming process exists to help us, and that process is synectics. In education, synectics is known as a model of teaching based on the psychological processes involved in creativity. It can be used as a brainstorming tool, both in a group or individually, or as a bridge to creative writing or to reflective activity. Based in the use of analogies and metaphors, the model has six steps and was created by William Gordon, its earliest stages conceived in the 1940's. Joyce and Weil’s (2008) critical approach for the selection of models of teaching for their textbook—now in its 8th edition provides educators more reason to look carefully at synectics, not only as a tool for creative brainstorming, but as a bridge to reflective thought. The six-step syntax of the model is a lengthy one with two possible avenues (Table 1).

**Table 1: The Two Avenues of Synectics**

<table>
<thead>
<tr>
<th>Making the Familiar Strange</th>
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| **Phase One:** | Describe the Topic  
Teacher has students describe the topic as they see it now. |
| **Phase Two:** | Create Direct Analogies  
Students suggest direct analogies, select one, and explore (describe) it further. |
| **Phase Three:** | Describe Personal Analogies  
Students “become” the analogy they selected in phase two. |
| **Phase Four:** | Identify Compressed Conflicts  
Students take their descriptions from phases two and three, suggest several compressed conflicts, and choose one. |
| **Phase Five:** | Create a New Direct Analogy  
Students generate and select another direct analogy, based on the compressed conflict. |
| **Phase Six:** | Reexamine the Original Topic  
Teacher has students move back to original task or problem and use the last analogy and/or the entire synectics experience. |

<table>
<thead>
<tr>
<th>Making the Strange Familiar</th>
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| **Phase One:** | Substantive Input  
Teacher provides information on new topic. |
| **Phase Two:** | Direct Analogy  
Teacher suggests direct analogy and asks students to describe the analogy. |
| **Phase Three:** | Personal Analogy  
Teacher has students “become” the direct analogy |
Phase Four: Comparing Analogies
Students identify and explain the points of similarity between the new material and the direct analogy.

Phase Five: Explaining Differences
Students explain where the analogy does not fit.

Phase Six: Exploration
Students reexplore the original topic on its own terms.

Phase Seven: Generating Analogy
Students provide their own direct analogy and explore the similarities and differences.


Synectics seems to watch the creative process, the learning process and the innovation process out its side windows as it drives thinkers and their experiences along. Gordon witnessed over and over again that breaking connections allowed for making connections, all based in participant experiences. Necessary irrelevancies. . . researching creativity “in vivo” . . . “non-rational, free-associative concepts”. . . “fundamental novelty”—each of these ideas is present in synectics, a word from the Greek meaning the “joining together of different and apparently irrelevant elements.” Gordon’s hypotheses with synectics includes people’s ability to understand their psychological processes of creativity and a valuing of the emotional and irrational above the rational. (Gordon, 1961, p. 6). Gordon discovered and was passionate about sharing his premise that “creative efficiency in people can be markedly increased if they understand the psychological process by which they operate” (1961, p. 6). And what better way to solve problems and generate new understandings, but through natural creative processes? Although his Synectics mechanism continued development after 1961, his hypotheses with Synectics theory remained steadfast:

1) creative efficiency in people can be markedly increased if they understand the psychological process by which they operate; 2) in creative process the emotional component is more important than the intellectual, the irrational more important than the rational; and 3) it is these emotional, irrational elements which can and must be understood in order to increase the probability of success in a problem-solving situation.

Gordon, 1961, p. 6

From classroom creativity to reflective practice: Synectics in action

After reviewing Gordon’s 40 plus years of synectics development, I understood that the theory and research behind synectics explained why I observed many of my former high school students lose their reluctance to write after a synectics brainstorming session. I understood why the listless writers grabbed direct analogies or compressed conflicts from our synectics brainstorming to bring their introductions to life. I had found an effective process that guided my students toward their own creative adventures in thought, and often in developing new respect for the ideas of their peers. The purpose of this article is to share the history of William Gordon’s important work, along with an example of its use for reflective thought during my session at the 2008 ETEN conference, where the theme was “Creativity and Enjoyment in Education.” Hopefully others will recognize his decades of intensive research into the creative process which has given us a rich instructional tool for metaphorical, creative and reflective thinking and writing. Modeling synectics at various educational conferences and using it in my instruction of university students and other educators has allowed me to continuously observe the inevitable streams of inventive thought, reflection upon experiences, and breaking and making of connections which Gordon consistently witnessed.

When I arrived in Liverpool to attend the ETEN conference, a dominant topic of news was the teachers’ strike recently enacted in various parts of Britain. With tough economic times looming worldwide, paralleled by the tired paradoxical forces of educational accountability, some British teachers seemed to
give in to the frustrating circumstances surrounding them. As an educator in America, where very few teacher strikes occur, I found the strike of great interest. I had planned to use Teacher Empowerment as my “familiar topic” for the first brainstorming step in Synectics (during my presentation/session), and now I had a powerful springboard of current events upon which we all could reflect. Using the first avenue of “Making the Familiar Strange,” below is the synectics brainstorming chart produced by the 11 participants in my TIG session:

Table 2: Results of synectics brainstorming at ETEN conference 2008

<table>
<thead>
<tr>
<th>Familiar Concept or Topic</th>
<th>Direct Analogy I</th>
<th>Personal Analogy</th>
<th>Compressed Conflicts</th>
<th>Direct Analogy II</th>
<th>Revisiting the Original Topic for Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Empowerment</td>
<td>Potholes</td>
<td>BE a “sluipweg” or side road...how do you feel?</td>
<td>Relaxed energy</td>
<td>Music</td>
<td>A) How can any of the metaphors or paradoxes we created inform our views of teachers?</td>
</tr>
<tr>
<td></td>
<td>Long &amp; winding road</td>
<td></td>
<td>Lonely</td>
<td></td>
<td>Teachers are seen as living lives of “lonely love”—they love</td>
</tr>
<tr>
<td></td>
<td>Missed road</td>
<td></td>
<td>Peaceful</td>
<td></td>
<td>what they do but don’t feel respected for it or understood by society at large.</td>
</tr>
<tr>
<td></td>
<td>Road not taken</td>
<td></td>
<td>Overlooked</td>
<td></td>
<td>They also live with “happy abuse,” in that they are overworked and generally put up with it.</td>
</tr>
<tr>
<td></td>
<td>Boulevard of</td>
<td></td>
<td>Happy</td>
<td></td>
<td>B) How can the emerged ideas impact how we prepare teachers?</td>
</tr>
<tr>
<td></td>
<td>broken dreams</td>
<td></td>
<td>Relaxed</td>
<td></td>
<td>Respect should allow for imperfections—It’s okay to take risks because we learn from challenges and mistakes. Teachers aren’t perfect teapots sitting on shelves—they are actually “chipped.” If they are chipped too often or damaged greatly in the profession, their purpose could dissolve, just as a teapot with a huge crack can no longer be functional.</td>
</tr>
<tr>
<td></td>
<td>My way, or the highway</td>
<td></td>
<td>Lost</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mud path in the grass</td>
<td></td>
<td>Appreciated</td>
<td>Jazz</td>
<td></td>
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<tr>
<td></td>
<td>Water buffaloes</td>
<td></td>
<td>Needed</td>
<td>Folk</td>
<td></td>
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<tr>
<td></td>
<td>in Romania</td>
<td></td>
<td>Tired</td>
<td>Rock</td>
<td></td>
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<td></td>
<td>Route 66</td>
<td></td>
<td>Overloaded</td>
<td>House</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moose in Alaska</td>
<td></td>
<td>Battered</td>
<td>Heavy metal</td>
<td></td>
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<tr>
<td></td>
<td>Waterways</td>
<td></td>
<td>Invigorated</td>
<td>Opera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Highways</td>
<td></td>
<td>Taken advantage of</td>
<td>Blues</td>
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<td></td>
<td>Auto Bahn</td>
<td></td>
<td>Loved</td>
<td>Pop</td>
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<td></td>
<td>Skyway</td>
<td></td>
<td>Empowered</td>
<td>Punk</td>
<td></td>
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<tr>
<td></td>
<td>Dead end</td>
<td></td>
<td>Helpful</td>
<td>Retro</td>
<td></td>
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<tr>
<td></td>
<td>Ventweg</td>
<td></td>
<td>Broken</td>
<td>Easy-listening</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sluipweg (Dutch</td>
<td></td>
<td>Proud</td>
<td>Reggae</td>
<td></td>
</tr>
<tr>
<td></td>
<td>for “side road”)</td>
<td></td>
<td>Recognized</td>
<td>Trash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moose in Alaska</td>
<td></td>
<td>Abused</td>
<td>Mariachi</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Misused</td>
<td>Hip-hop</td>
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<td></td>
<td></td>
<td></td>
<td>Burned out</td>
<td>Doom</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Chipped</td>
<td>Rap</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Relieved</td>
<td>Folk</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Crashed</td>
<td>Country</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Gothic</td>
<td></td>
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</tbody>
</table>

After the enjoyable brainstorming, the group arrived at step six of synectics, the revisitation of the original topic. As evident in the chart, I proposed two questions to them for a reflective discussion. I have underlined the key words or concepts from the chart which stood out to the group as we revisited the topic of Teacher Empowerment. The “Compressed Conflict” column attracted empathy from several members of the group as they pointed out “lonely love” and “happy abuse” as descriptors for hardworking teach-
ers. Then the discussion shifted to the media exploitation of teachers and the erroneous societal blame upon teachers for all of the faults of public education. For those of us involved in teacher preparation, the question of “How can we prepare our teacher candidates for the political and critical aspects of being an educator in today’s society?” was suddenly forefront in our reflection. The group spoke of allowing for imperfection, and encouraging teacher candidates to embrace their mistakes and to learn from a reflective stance. We also realized the reality that our curricula for preparing teachers may need enhancements in the areas of reflective strategies, political and support organizations, learning communities for continued professional growth and empowerment, and specific methods for enhancing affiliation among teachers. How did synectics help this conversation steam forward? The Dutch term “sluipweg,” which emanated from our group, directed the personal analogy column, as we all pretended to BE sideroads…. the words and thoughts brainstormed from that column directed the creation of our compressed conflicts, which drove the evolution of our empathy for teachers and the lack of respect they face. The group used “happy abuse” and “lonely love,” which made someone mention the chipped coffee cups in their grandmother’s kitchen, and the love the family had for those cups. From there, the metaphor of a “teapot” came forth, and we began comparing abused and tired teachers to a chipped teapot, which came partially from the compressed conflict “chipped whole.” A teapot can be chipped and still serve its purpose, but too many damaging chips can create a wound which would stop the teapot from its function. Can the onslaught of low pay, little respect and the pounding of accountability stop our teachers from their function? This metaphor would never have emerged without synectics. The group felt a unique synergy as the “sluipweg” brainstorming occurred and as the teapot discussion came about. Many of the group wanted a copy of the synectics brainstorming which signified their ownership over the ideas they had created. This self-initiated form of reflection focused our attention to a gap in the curricula we provide to our education students; furthermore, it allowed us to find commonalities for understanding a complex concept like Teacher Empowerment, through metaphor and through creativity.

An explanation of synectics and its instructional significance

Further commentary upon Synectics and Gordon’s development of it may be helpful in understanding its purpose and significance. After developing and working with his synectics mechanism in business and industry, Gordon created workbooks and teacher guides for school settings. Through his work using synectics workbooks with black, inner city students who desperately needed to catch up to white counterparts in reading and writing achievement (1973), Gordon found that his materials using the metaphorical approach provided sensitivity along with “sensible innovation.” Additionally, he observed that his materials assisted unmotivated students due to the focus on basic reading and writing skills and the relevancy of personal experience (pp. 55–56). After interviewing the students involved, Gordon determined that the reasons for large shifts in learning appeared to be “the caring tone of the materials.” The form of his workbooks, written in metaphorical texts, implied an “objective and unsentimental” attitude of caring about the students’ interests (p. 67).

Joyce & Weil (2000) describe the instructional and nurturant effects of synectics: group cohesion and productivity, tools for metaphoric thinking, problem-solving capability, self-esteem, adventurousness, and achieving curricular content (p. 239). I witnessed each of these effects during the uses of synectics in my English language arts classroom. I have observed students’ ideas being honored by me as well as class peers. The personalized, divergent ideas produced with synectics taught me to respect each student’s capacity for creativity. Other students have shown their sense of honor for each other’s ideas with appreciative laughter or statements like, “That’s cool!” or “You’re sharp!” The use of metaphors in writing (as delivered by synectics brainstorming sessions) assisted my students in structuring their thoughts, as well as in making sense of their experiences. Synectics helped many of my students find their voices in writing and raised their self-esteem (as they recognized their creativity being honored) by pushing them towards an often first successful writing experience. New events on my agenda with synectics
include utilizing this model to assist my university teacher candidates in reflection on their growth as beginning educators and to elicit reflective thought with colleagues through the use of metaphor.

Now I have taken an obligatory stance to share the history of the development of synectics, hoping educators will take either a second look or a first look at the power of creativity that synectics provides. A synectics brainstorming session is flexible, free, directional and fun, yet somehow often helps those involved attain a more powerful intellectual and interpersonal vision of themselves. An empowering feeling emerges, a special synergy which promotes openness and reflective dialogue.

A biographical account of Gordon’s development of synectics

I found that by investigating Gordon’s life, in connection to his work with synectics, I could more effectively envision his progression in the development of synectics as his research began in the 1940’s and continued into the 1980’s. According to the most prolific and only biographical piece I could find on William Gordon (Fincher, 1978), the roots of synectics were embedded in Gordon’s way of knowing from early in his life. He struggled through several northeastern United States private schools looking for meaningful conceptual experiences, but not finding many. After attaining a Bachelor of Arts degree in philosophy, he became an ambulance driver and combat salvage diver in World War II. In this context, Gordon found his first observation of a wondrous problem-solver, a General Montgomery. Sunken boats needed to be cleaned from Tripoli Harbor, and this general responded creatively. He thought of his mother and how she used to rake piles of dirt down from mounds into her garden; hence, Montgomery used this analogy in his decision to blow the boats to pieces and rake them out of the harbor. Energized by this observation and by his own inventive interests, Gordon created an unstoppable system for retrieving experimental torpedoes (an inflatable balloon which floated torpedoes to the surface). Soon after, he began studying his own creative process at the Underwater Laboratory at Harvard. Although realizing the importance of “beside-the-point imagery” and “constructive irrelevancies,” Gordon admitted confusion and failure to help the war effort with his research (p. 67).

In 1943, he began observations on individuals with responsibilities in problem-solving through creative solutions. His goal through 1944 was to “identify some constants in the creative process and to reveal some Psychological States that were present in the process no matter the conditions” (Gordon, 1973, p. 230). Beginning in 1949, he began tape-recording problem-solving sessions. He also finished his thesis for Harvard University in 1949. Over the next ten or so years, he and several colleagues continuously made small discoveries pertaining to the Psychological States, and the synectics process was evolving toward Table 1 presented in this paper, although mostly used for invention, design, and problem-solving in industrial contexts (e.g. Kimberly-Clark, Singer Sewing Machine Co., Johns-Manville, and RCA-Whirlpool) (Gordon, 1961, p. x). Gordon’s involvement with professional conferences is suggested by Harvard University’s holdings of two books of notes from the Conference on Creativity as a Process from 1956 and 1957, co-authored by him and Jerome Bruner. Bruner (1971) noted that he encouraged Gordon to pursue publications regarding the creative process and synectics theory. And Gordon (1961) validated that Bruner was the one who convinced him the book on synectics should be written (p. ix). Bruner’s interest and work in the field of education may possibly have propelled or directed Gordon’s future movement into publishing texts for the educational community.

After George M. Prince joined Gordon and his research group in 1958, the team officially chose the term synectics for this process of creativity and moved from working with the Invention Design Group of the Arthur D. Little Company in Cambridge, Massachusetts to creating their own company, Synectics Educational Systems (SES) (Weaver & Prince, 1990). George Prince was more interested in working with synectics for industrial purposes and believed in synectics as a way to produce creative synergy to solve problems in the work environment.
To continue Gordon’s story, he had written two books by 1961, *Creativity as a Process* (1956) and *Synectics: The Development of Creative Capacity* (1961). Next, Gordon developed *The Basic Course* (1971), and his continued observations of synectics enhanced his belief that “creativity is enhanced by conscious analysis” (Joyce & Weil, p. 222). Other training procedures and workbooks came before and after the Basic Course for educational contexts, such as *Making It Strange* (1968), *Facts and Guesses* (1969), *Strange and Familiar* (1972), *Teaching is Listening* (1972), and *From the Inside* (1974). Gordon and his research editor Tony Poze seemed to break away from SES around this time, or maybe even earlier, but I could not find any information as to when or why. I do know that Gordon received permission to use the term Synectics from Synectics Inc. for his 1961 book (p. xi). It is possible that George Prince shifted the name of the company (SES) to Synectics Inc. in 1960 or 1961 while retaining the copyright, and Gordon left to begin his publications and research in the educational arena. The book jacket of *Synectics* (1961) states:

William J. J. Gordon divides his time between the academic and business worlds. He is President of The Invention Research Group in Cambridge and lectures at Harvard University. From 1950 to 1960 he was leader of the Invention Group at Arthur D. Little, Inc. He contributes to such periodicals as the Harvard Business Review and Philosophical Review, and has written fiction for The New Yorker. Mr. Gordon serves on the board of directors of the Boston Arts Festival and of the Institute of Contemporary Art.

Another Gordon book, *The Metaphorical Way of Learning and Knowing* was published in 1968 with a second edition in 1973. I believe this was probably the height of synectics popularity in educational settings due to a second printing of this book and so many workbook publications. A small endnote at the conclusion of *The Metaphorical Way of Learning and Knowing* (1973) suggested where Gordon headed after his time with SES:

W.J.J. Gordon’s work in the field of creative process led to SYNECTICS, the word that has become famous since coined by him in 1956. After founding the SYNECTICS theory of invention and discovery, he turned to education. *The Metaphorical Way* is the result of the application of SYNECTICS, made by him and his associates, to sensitivity and learning situations. Although he has lectured at many universities and was on the faculty at Harvard, his major interest is his educational research and working with his graduate students from a wide variety of universities. (1973)

Gordon also published several articles in the *Journal of Creative Behavior* (1974, 1981) and added to his publications with *The New Metaphorical Way of Learning and Knowing* (1979) and *The New Art of the Possible* (1980). Several researchers have cited his work with synectics and creativity over the years, some using it in research, from literature to education to nursing (cite). Technical addendums of synectics have also surfaced. The Association for Supervision and Curriculum Development has a synectics tape in their “Teaching Strategies Library II” (Weaver & Prince, 1990, p. 378). I also found mention of “MacSynectics,” a hypercard stack produced by Apple Macintosh in 1999.

**Implications: Continued interest and the need for revival**

By following Gordon’s lifelong work with creativity and synectics, readers can see the continuous relevance some find in synectics. An advertising student from Buffalo State College published his thesis online (Gonzalez, 2001), which provided a thorough description of the development of synectics, as well as a comparison among two other well-used creative problem-solving techniques. Two researchers from Singapore (Teo & Tan, 2003) delineated the course of synectics in their study of Chinese literature and creative writing, crediting synectics with providing a bridge to *Biyu* (a compound literary term for metaphor/analogy/simile more feasible for study in the language of the researchers) (p. 30).
Many disciplines show interest in the creative process, and some still search for or dialogue about Gordon’s writings, as can be detected by Internet searches using the keywords W. J. J. Gordon or synectics. Unfortunately, all of his writings are out of print. Only 28 copies of Making It Strange are available internationally through interlibrary loan. The copy I checked out was tattered and falling apart. Knowing the value of such material, I felt a great loss to realize the difficulty of my search for Gordon’s writings and of finding one of his books in a state of disrepair. Although I was able to purchase a copy of his 1961 book Synectics through the Internet, the only way I initially managed to attain a copy of The Metaphorical Way of Learning and Knowing was because my advisor had a copied version of the entire book. I found one paperback copy available on the Internet a year later and I ordered it. I doubt I will ever be able to own the others.

The commitment of William Gordon’s research to the development and application of synectics is obvious after this brief account. His scholarly work has garnered admiration from peers and critics alike (Gonzalez, 2001; Bruner, 1971). Gordon (1973) promoted the use of synectics, not only as a tool for understanding, but also as a platform for students to “evolve their own metaphors and analogies” (p. 59). His vigor for the use of synectics, not only for the inventive and learning processes involved, but also for the instigation of metaphorical and reflective thought, is evident in several of his comments and writings. He wrote, “... training the individual to understand and celebrate metaphor (in poetry and in literature as well as in science) and training the individual to make metaphors (even if they are generally descriptive) is training him in habits of mind consonant with the functional principles of the underlevels of brain and nervous system” (p. 117). Additionally, when he was interviewed by Jack Fincher in 1978, Gordon was asked to face up to those who thought synectics was “utter nonsense.” Gordon “remained unflappable” and as Fincher wrote, “never wavered in his conviction that synectically is the way people think, not just a way” (p. 30). Irritated with Fincher’s suggestion that synectics is possibly only one way to creativity (and mentioning the protesting groups who believed this), Gordon responded, “Oh, I don’t care. But you asked me. I believe it is the way” (p. 30). And he expounded on the research and instances which led him to believe in the synectics mechanism’s ability to birth such metaphorical power. Although I cannot go back to Gordon’s time of creating creativity and understand the controversies of his work in that day, I can attempt, in the arena of scholarly publication and research, to gather educators and researchers together today to reinstitute Gordon’s investigations of discovery-by-analogy and investigate the enlightenments I have described in this paper. Reflection is not honored often in the sometimes uncivil environment of higher education. Department-level and individual events and efforts must emerge from the inside-out as we work to shape more effective, empowering contexts for education. Then, despite, the outside-in dictums, our reflective practices can provide a fortress for us, even a tunnel, which can protect us as we continue to work in community educational forums—our tradition being one of reflection and sincere service. Synectics is one powerful practice, or model, maybe even a scaffold for us to embrace as we engage in our reflective practice.

The value of a revival of synectics, and a reminder of reflection, cannot be understated in our age of global communications, competition in higher education, and crises in accountability. Creative problem-solving; irrational inventive thought; and “fuzziness” of the mind during the learning and reflective process must be respected, analyzed and researched in current forums of education. Synectics seems to watch these processes out its side windows as it drives thinkers and their experiences along. Gordon witnessed over and over again that breaking connections allowed for making connections, all based in participant experiences. John Dewey’s (1938) penetrating words again remind educators to acknowledge and retain those educational experiences that promote personal meaning and enthusiasm for learning.

What avail is it to win prescribed amounts of information about geography and history, to win ability to read and write, if in the process the individual loses his own soul: loses his appreciation of things worthwhile, of the values to which these things are relative; if he loses desire to apply what he has learned and, above all, loses the ability to extract meaning from his future experiences as they occur? (p. 49)
References


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Special Education
Introduction

The complex debate surrounding inclusive education seems to be inexhaustible. Within this debate we must not lose sight of the social and economic implications that it encompasses (Jupp, 1992; Pierpoint, Forest and Snow, 1992; Larry, 2006). The concept of inclusive education needs to be viewed as a process located within the cultures, policies and practices of a whole school (Salamanca Statement, UNESCO, 1994). We need to reflect relentlessly to ensure that we acknowledge the fact that school culture is still selective, exclusionary, credential-oriented and standards-based (Ainscow, 1999; Slee, 2000). Education is a mainstream environment that should encapsulate the fundamental principle of ‘schools for all’. Inclusion is about social justice and having insight into disability equality and human rights issues that underpin the social model of disability (Oliver, 1999). It is about treating the students equally rather than the same. There is no one approach to inclusive education, being inclusion orientated is a different experience in every school due to the cultural context and one’s social construction of disability. Inclusion is a process and not a fixed point to be reached. We need to look toward the families to gain the best models of inclusion. This is where the experience is one of unconditional acceptance, (Turnbull et al, 1994; Orelove, 2004).

Moving Forward With Collaborative Teamwork

In inclusive schools the most likely individuals to be members of the team are the parents, teacher and facilitator team, student and peers, (Stainback and Stainback, 1992). They are also the people who will be directly involved in the daily living, teaching, education, and supporting of the disabled student. Placement of the disabled student really does matter and everything we do, as educators need to become portable. Supports for the disabled student need to be in place, only as special as necessary and strategic. Collaborative teamwork is when all members of the team have common goals and a shared understanding (Garner, 2001). Family involvement is a must and families must be helped to understand the instructional content of each subject, in order to contribute effectively in their child’s school life.

Parents and professionals are constantly bringing new meaning to what constitutes an appropriate and effective inclusive education and what facilitates effective partnerships among professionals, families and others involved in the education of disabled students. Collaborative teamwork is hardly a new idea. It has been put forward as a strategy that could improve education for disabled students (Whitehouse, 1951 in Stainback & Stainback, 1992). Team members are constantly struggling with redefining roles, relationships and responsibilities in order to collaborate more effectively in inclusive school environments.

The nature of the relationships between teachers and class facilitators (Learning Support Assistants—LSA) is constantly changing. In schools, the instructional strategies associated with each discipline are among the most significant contributions team members make in the collaborative teamwork process. The incorporation of different perspectives increases the effectiveness of the educational experience. A team’s diversity is truly its strength. The collaboration and interdependence required for planning, decision-making, role release and on going role support are challenging particularly for new teams. Teachers who have previously worked autonomously must reach consensus with another educator working in their classroom. Organisationally, there must be structures to develop new approaches to the organisation of teaching teams allowing them to collaborate with one another and work with all the students in
their classes. Cultural norms and expectations for collaboration must be developed within schools and become part and parcel of school life. All too frequently, teachers work individually. The outcome of the teachers’ work has little or no effect and is not affected by the actions of other educators. Teachers do their own work with their class and LSAs do their own work with the disabled student/s in class. In teaching teams, each member works to achieve the common goals within a transdisciplinary framework (Lyon & Lyon, 1980). Members of the team both depend on and support other people to achieve the agreed upon goals (Villa, 1996).

**Inclusion In Malta**

Malta is an independent republic situated in the centre of the Mediterranean. It consists of a small group of islands with a population of less than half a million. It has a very selective educational system, based on the English Model. Compulsory school age is 5–16 at 4 levels: Kindergarten (3–5 years), Primary A (5–8 years), Primary B (8–11 years) and Secondary (11–16 years). Students are streamed at the age of 9 years and sit for a competitive exam at the age of 11, in order to be placed in different schools, depending on the results of this exam. SEC (secondary) exams are held at age 16, the end of compulsory education. Within this selective process, the Maltese educational system has also developed an inclusive policy. It is truly a land of many inherited cultures, which have all left their impressions on its culture, and a land of paradox – inclusion in streamed classes. Malta experiences a paradoxical experience: inclusion in an exam-oriented educational system. Church and independent schools are either streamed or mixed ability classes.

During the past eighteen years the Maltese educational system has pledged a commitment to inclusive education. An inclusive educational policy was introduced in 1995 (MIE, 1995), and as a result, disabled students were given a legal statement of needs and were placed in mainstream schools with identified support. A Ministerial Committee on Inclusive Education presided by the Minister of Education and Culture was set up in 1996. It was reinstated after a change of government in 1998. Over the years, this committee has developed a number of policies. These included the setting up of the Statementing Mediation Panel, the Statementing Appeals Board and the publication of the Inclusive Education Policy. This committee was not reappointed after the general election in 2003. (Bartolo et al, 2004)

The National Minimum Curriculum (NMC) published in 1999 stressed its commitment to inclusive education:

‘Each school is endowed with a vast repertoire of skills, experiences and needs. This diversity, allied with the individual and social difference evident in the student population, enables and requires a pedagogy based on respect and the celebration of difference...it is a well-established fact that not all students develop at the same rate. Students should be allowed time and be given the necessary support for their personal development.’

(NMC 1999, p.31)

and is emphasised as one of its major principles is the issue of inclusive education. Principle 8 states that our society:

“…believes in the broadening of democratic boundaries, in the fostering of a participatory culture, in the defence of the basic rights of the children, in the constant struggle against all those factors that prevent the students’ different abilities from being brought to fruition and in the safeguarding and strengthening of our country’s achievements in the social and cultural fields.” (p.47)

Whilst the NMC stresses that inclusive education is based on the commitment of the whole of our learning society to adopt and to implement inclusive educational strategies and policies, as well as respecting and celebrating diversity, this is more or less left as being a politically correct statement. The inclusion
reality on the island is experienced very differently in schools, really and truly depending on the School Management Team’s beliefs.

Education in Malta focuses on standards (Sultana, 1994). Whilst we petition for inclusive education, all current provisions and structures lean towards exclusion. We need to reflect relentlessly to ensure that we acknowledge the fact that school culture is still selective, exclusionary, credential-orientated and standards-based (Ainscow, 1999; Slee, 2000).

Schools in Malta now include inclusive settings. This entails the use of a class facilitator who is assigned to one or more classes where there are children with a statement of needs. It is the usual practice for most facilitators to follow the same children for two or three years, while the class moves on to another teacher every year. Stella Maris College presents a different reality.

**Stella Maris College**

Saint John Baptist De La Salle, the patron saint of all teachers, is the founder of the college. He developed insights, principles and organisation for students having emotional and educational needs over three hundred years ago, around 200 years before John Dewey (1916). His philosophy of education was guided largely by his love for the young, by his faith and by his determination. He therefore took action when a situation called for it, set up a school and based De La Salle’s education ethos on these beliefs. John Baptist de La Salle was more concerned with solutions rather than with theories. The elements of La Salle schools’ ethos includes a programme that should be integrated, informed, and practical, as well as organised to include student involvement and individualised to meet student’s needs. Stella Maris College follows this legacy.

Stella Maris College is a boys’ Church school for children between five and sixteen years of age (Maltese compulsory school age range). It has a population of just over a thousand children with around ninety boys in each year group. Stella Maris College has a class facilitator in every classroom in the Junior School, and subject – pegged class facilitators as from the last year of primary school through to Form 5. Therefore, the school has created teacher-facilitator teams, where the teams stay on working together and the class moves on.

This paper intends to explore the views of the professional teams of this school. This group of educators has experienced both children-pegged and team-pegged facilitator-teacher teams and can therefore share their insights into these two experiences. The students and their parents have also shared these two experiences.

The college has moved from mainstreaming to integration and now to process of inclusion. This is a unique experience. Whilst recognising that there is no inclusion utopia, the college strives to be inclusive-oriented. Today all classes have teacher/class facilitator teams and collaborative teamwork is fostered and targeted for. Early identification, referral, assessment and provision policies are in place.

McGill Action Planning System (MAPS) and Individual Educational Programme (IEP) meetings are held for all students with a statement of needs, where all the teachers, facilitators, students, supporting professionals and parents participate. Parents are respected and are in partnership with the teaching teams. The school follows a transdisciplinary philosophy (Giangreco, 2002; Giangreco, Cloninger and Iverson, 1998; Orkwia and McLane, 1998; Orelove, 1994).
Mission Statement

The School’s mission statement was revised in 2002 to reflect its inclusive philosophy:

Stella Maris College, being a Christian school, gives emphasis to the education of children with individual needs. It welcomes with enthusiasm children from different social and family backgrounds and fosters among its pupils attitudes of tolerance and sensitivity to the individuality of each person, of general concern for justice and peace and of service to the family, the school, the parish and the community at large.

As a Lasallian school, Stella Maris College is characterised by a highly professional school community, empowered to create a vibrant learning environment that fosters spiritual, academic, cultural and interpersonal growth.

- Complete self-development
- Special concern for the marginalized
- Pastoral care as the basis of all our programmes
- ‘Being’ comes before ‘doing’ and ‘having’
- Holistic and balanced education aimed at the whole person, within a happy environment where the individual is respected and the individual is sensitive to the needs of the group
- Educating students for life
- Education is primarily the role of the parents and the school is only complementary
- Encouraging pursuit of excellence
- Fully committed professional staff

It is therefore clear that the college has made a philosophical and a pragmatic commitment for an inclusive experience for all the boys. The college’s Objectives For Inclusive Education are:

- A whole school issue
- An environment of collaboration and solidarity in diversity
- Support only as special as necessary
- Meaningful and effective assessment
- Differentiated teaching and learning
- Cooperative teaching arrangements
- Positive behaviour in and out of class
- In partnership with parents

The college puts at its centre young people and their needs. Young people are growing up in a rapidly changing society. To respond to these needs, we need a system of education that is flexible and adapted to different levels of development.

The Need for a Different Experience

An internal audit was held in 2001 in order to ascertain and evaluate the inclusive experience and the staff’s expectations at the time, given that the school had had facilitators present in the school since 1995. The individual support system involved pegging the facilitator to the disabled student. This was evaluated and examined and found to cause labeling, often leading to learnt helplessness, and creating a special unit inside the class. It was in fact a barrier to inclusion and the ineffective use of facilitators together with old time regular education were seen as the key problems the college was facing on this journey. (Stella Maris College Audit report 2001).
The audit was presented during a School Professional Development Seminar. It recommended Education of all students, facilitator/teacher teams, Defining learning priorities for all, Individual assessment formats, Collaboration and Partnership with parents. The staff discussed and reflected upon the audit in detail and all present agreed that objectives for inclusive education at the college should be; a whole school issue, an environment of collaboration and solidarity in diversity, support only as special as is necessary, meaningful and effective assessment, differentiated learning and teaching, cooperative teaching arrangements, positive behaviour in classrooms, and partnership with parents. Their Vision Statement included the embracing of inclusion as a whole school issue, the provision of a quality education for all, the fostering a culture of learning on the premise that pupils are different and the assurance of equity, entitlement, effectiveness for each pupil. The staff recognised the need to create Consistent Professional Teams, to decrease the labeling effect, to encourage independence of students, to utilise the facilitator’s skills, to create a more supportive environment for all students, to work towards a whole school policy and more effective utilisation of resources. In practical terms this translates into goals and objectives:

- To introduce teacher/facilitator teams in every class
- To change negative attitudes
- Reduce barriers to learning and participation
- To clearly identify learning priorities for all students
- Matching assessments to the individual learning objectives set for each individual student
- Collaboration
- Partnership with parents

The staff emphasized that education for life requires a preparation for acceptance and an appreciation for the gifts held by all members of society. As such they felt a need to organise support to be ‘only as special as necessary’. This was a reaction to their experience of segregated children within the classroom. They wanted effective instruction through differentiated teaching where they would be responsible for ALL the children in their classroom (Giangreco, 2002). They emphasized the need to work in cooperative teaching arrangements and to create classroom environments that promote positive behaviour.

The implications of these objectives were the setting-up of a new experience as from academic year 2001–2002. This involved

- Transition meetings from kindergarten and each year following to Form one have been implemented and are in place
- Teacher/Class/Subject Facilitator, (LSA)
- Roles and responsibilities of teacher/facilitator teams clearly defined
- Assessments and reports are being tailored to meet the students’ individual needs
- Open communication with parents

The Research

The Specific research questions are: Is the Consistent Team Approach working and which of the two different experiences is more beneficial and effective? Teachers, facilitators, school administrators, parents and students Years 6 – Form 2 had had three years’ experience of the new approach and could therefore compare the two experiences. The research is actually on-going action research. It was first done informally in 1999 in order to start implementing the idea of the new pegging, again in 2001 (Agius Ferrante and Falzon, 2001), yielding the results below, and from then on continuously. The research methods used were both quantitative and qualitative. These involved questionnaires for both teachers and facilitators, focus groups with parents and students, and interviews with the school management team.
36 questionnaires were distributed to 18 teachers and 18 class facilitators in the Junior school, as well as to the Forms 1 and 2 staff. These included close and open-ended questions. Two focus groups were held: 1 group of 15 students and 1 group of 10 parents. Interviews were held with three members from school management. The actual sample included: 15 teacher questionnaires from the Junior School (TJ), 11 class facilitators questionnaires from the Junior School (FJ), 21 questionnaires from Forms 1 and 2 staff – teachers (TS) and facilitators (FS). 4 questionnaires could not be scored.

### Questionnaire frequency chart

<table>
<thead>
<tr>
<th>Theme</th>
<th>Better</th>
<th>Worse</th>
<th>Same</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship within Team</td>
<td>43</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Teamwork</td>
<td>43</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Trust</td>
<td>41</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Openness</td>
<td>41</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Transparency</td>
<td>37</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Collaboration</td>
<td>39</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Mutual Support</td>
<td>40</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Planning for the Year</td>
<td>41</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sharing of Ideas</td>
<td>42</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Positive Feedback</td>
<td>43</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Negative Feedback</td>
<td>23</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Daily Planning</td>
<td>38</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Brainstorming for Adaptations</td>
<td>49</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Classroom Correction</td>
<td>36</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sharing of Ideas</td>
<td>43</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Sharing of Responsibilities</td>
<td>39</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Sharing of Work</td>
<td>37</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Role Release</td>
<td>35</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Individual Programming</td>
<td>37</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Implementation of IEP</td>
<td>36</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Assessment</td>
<td>36</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Relationship with Parents</td>
<td>34</td>
<td>1</td>
<td>5</td>
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<tr>
<td>Rapport with Children</td>
<td>35</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Rapport with Other Staff</td>
<td>33</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Children’s Learning Experiences</td>
<td>35</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Socialisation within the Class</td>
<td>38</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Professional Growth</td>
<td>34</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>31</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

The Frequency chart overwhelming indicates that teachers and facilitators perceive the new approach as better on all levels:

- Planning
- Implementation
- Relationships
- Teamwork
- Children
- Parents
- School
- Job Satisfaction

The content analysis was made from the following:

- Facilitators’ open ended comments from questionnaire
- Teachers’ open ended comments from questionnaire
• Parents’ transcriptions from Focus Groups
• Children’s transcriptions from Focus Groups
• Transcription from interviews with administration staff

Themes from content analysis were the following

• Relationships
• Teamwork
• Subject Expertise
• Quality of Experience
• Benefit for School
• The Children
• Mutual Planning and Information

The building of relationships between teacher/facilitator teams in this research has demonstrated a positive impact on good inclusive practices. It has also facilitated a shared understanding amongst educational staff.

‘This year I experienced trust, openness, job satisfaction and the sense of sharing responsibilities, resources and ideas’ (FS)

‘We trust each other and both share the same ethos in methodology and discipline’ (FJ)

Senior management has noted that staff are more comfortable with each other especially with regards to teacher/facilitator relationships. Once teaching teams are established, it is important for the senior management to have the option of changing those teams if it is seen to be in the best interest of the student. ‘The staff get to know each other better, much more trust and more confidence within teachers and facilitators. There is a lot more continuity, which is better for the children…but you must feel safe to change teams’ (Asst head)

Both teachers and facilitators clearly value the quality of teamwork and this research demonstrates their practice.

‘Get accustomed…to each other’s method’ (TS) ‘Can work more easily together’ (TS)
‘Passing information to each other’ (FS) ‘Promotes help and feedback’ (TS)
‘We have come to accept and appreciate each other professionally…and understand and respect each other’s character.’ (TJ)
‘The teachers and the facilitators work better together’ (Std)

Subject facilitation has been pivotal in establishing a new role and a clear understanding of that role for the teachers, the facilitators and for the students. Subject facilitators have a degree in an educational related subject and are qualified in individual subjects as well as having a University diploma in Facilitated education.

‘Facilitator becomes professional in the subject’ (TS) ‘Share experiences and ideas’ (TS)
‘Improves in all subjects and resources increase’ (FJ) ‘Share ideas and learn more’ (TS)
‘The facilitator explains better for us and gives us space’ (Std)
‘We get better notes and have a lot of pictures to help us understand’ (Std)

This research has shown that this experience has been beneficial on all levels within the school community.
‘Challenging experience’ (FS)
‘Team option has more advantages’ (TS)
‘Helps me more and attention is on all of us’ (Std)
‘Gives me opportunity to grow with others and share each other’s experiences and professionalism. I look forward to next year!’ (TS)

The initiation of teacher/facilitator teams has been the primary motivating force behind this college’s journey towards better inclusive practices.

‘Get accustomed to system itself’ (FS)  ‘Efficient inclusive system’ (FS)
‘Lessening stress and pressure of work’ (FS)  ‘One feels secure that s/he belongs’ (FJ)
‘Looking at the previous year’s experience helps on improving in each scholastic year’ (TJ)
‘It saves time and energy’ (TJ)
‘This system is better but also depends on the quality and motivation of the staff.’ (Asst head)

The presence of teacher facilitator teams has given the students the opportunity to grow and progress through the college along with their peers.

‘In changing facilitator; both the child and the facilitator are given the chance to grow, to change and to improve’ (TS)

It is important for the student not to be tied to one particular facilitator. The presence of class facilitators dissuades the students for becoming dependent on one individual allowing them to be one of the class and primarily the teacher’s responsibility.

‘Looking from the children’s point of view... helps them emotionally and give them better coping skills. It also makes them unattached to any particular facilitator, the facilitator being a class NOT a child facilitator’ (FJ)
‘Working in a team could allow for more in-depth work with the children’ (TJ)
‘The children with disability have really grown and become more independent’ (Asst Head)
‘I find that all children are being helped, whatever their abilities.’ (Parent)

Conclusion of results and recommendations

All input from the various stakeholders in the school overwhelmingly indicates that this new approach is superior and more effective in all aspects. The college identified appropriate goals and continues to work towards the challenges of being truly supportive, flexible and adaptive to the individual needs of all students. The concept should therefore continue to be implemented always with the best interest of the children in mind so that teams can change as is needed.

Whilst parents of disabled children are demanding that their child receives his education within mainstream schools, it is interesting to hear the views of parents of typically developing students. The research clearly shows that the other parents are positive about this experience and appreciate the support that having another adult in class brings.

‘Having students with disabilities in the school is a very positive experience, both for the children and for us parents. Personally it impacted me as a parent understanding difference and intolerance. The new experience is definitely reaching far more of our students, supporting each student according to his needs, which after all is the Lasallian charisma.’

Given the results of the research, the following recommendations were made to the school:

• Continuous and annual evaluation of teams
• Options to change teams in the best interest of all the stakeholders
• Management must ensure that the system is flexible enough to allow for continuity and change. For example one facilitator may need to stay with the same student because of his needs, (for example; student with severe autism)
• Annual evaluation from all stakeholders
• Staff training
• Employment of only qualified personnel who are willing who work in a team
• Continuous support from support staff
• Partnership with all parents

Final note

The biggest barriers to inclusion are adults and the less than appropriate support systems. Support does matter and seeking a balance between teacher and facilitator involvement in the disabled student’s learning as well as the other children’s is crucial to sound educational practice.

‘I prefer Experience 2. It helps me to work better both with the teacher and with the children. More inclusive setting, more job satisfaction and children look at me in a different way (better) even when correcting the children’

References

Oliver ,M., (1999). Disabled people and the inclusive society or the times they really are changing Public lecture on behalf of Strathclyde Centre for disability research and Glasgow City Council.

Charmaine Agius Ferrante
Inclusion Consultant
Stella Maris College, Gzira
Central to educational policy and planning in the United States (U.S.) is a concern for meeting the needs of at risk and special students. Certainly since the inception of Public Law 94–142 in 1975, U. S. educators have been concerned with how to meet the needs of students who, for one reason or another, are not able to function in the regular classroom. While various methods to meet students’ needs have been tried, over the years the concept of inclusion, the incorporation of special needs students into the regular classroom setting, has been identified as the generally most desirable approach to serving special students. And, while definitions of inclusion may vary among nations, the issue of how to meet the needs of special students has been a concern of international educators as well as educators in the U.S. (Schnaiberg, 1995).

Inclusion is defined as the placement of special needs students in the regular classroom or into the least restrictive environment. Retreating from pull-out programs, in which students are removed from classrooms to be served in an alternative setting in the school or placed with other special needs students in environments removed from their home school, emphasis is currently on meeting a broader range of social, emotional as well as academic needs in the student’s home classroom. Ideally, the regular classroom teacher along with special education experts would modify the curriculum, instruction, or other aspects of the environment, to facilitate students’ functioning.

Providing special services after students are identified as having special needs is increasingly seen as too little too late. Interventions should occur early in students’ educational life; identify at risk students who are having difficulties early and provide support before a deficiency becomes severe enough to require long-term special services. To this end, the concept of Response-to-Intervention (RTI) is being supported by national and state level policy makers as a means to intervene in the academic life of all students; the goal is to ameliorate deficiencies before they become endemic in the life of the student. Conceptually, the premise of RTI is clear: (1) Assess students as early as possible to identify students who may be at risk, (2) provide the necessary support or intervention to overcome the behavioral, social, emotional, or academic deficiency, (3) assess students progress overtime as the intervention is applied, (4) adjust the intervention in light of the data, and (5) continue support. Only after RTI has been ineffectual would students be considered for special services beyond RTI. RTI is a response to meeting the needs of all students and not specifically a special education initiative. It has however, been closely linked to special education services (Samuels, 2005) and ideally acts in concert with special education to identify and serve students who have needs that go beyond the ability of RTI services to remediate.
While RTI programs are an early response to the needs of students, one could view this effort as another add-on to the regular classroom environment. While the specific nature of RTI interventions will vary, generally we suspect it is the regular classroom teacher who, along with other support personnel, will carry the primary responsibility for its success or failure. Rather than another addition to the traditional educational platform, we suggest that there are other organizational patterns that already accomplish many of the expected outcomes of RTI and inclusion but which are not considered in planning.

Historically, a number of alternative school and classroom organizational patterns have been tried in an effort to improve education to students. Among these alternatives, multiage classroom environments have been successful with a broad range of social and emotional outcomes. Rather than providing for a new add-on to teachers’ role in the traditional classroom, we would suggest that many of the attributes of the RTI initiative and expectations related to the philosophy of inclusion can be met in the multiage classroom. Furthermore, multiage classrooms have an established history upon which to build and may provide a better baseline classroom environment upon which to meet the needs of at risk and special needs students while, at the same time, providing benefits to all students. Overall, inclusion and the RTI response may be easier to implement and more naturally fit into a multiage setting, which should enhance their likelihood of being successful.

However, as of 2003 multiage settings were seen to be declining in popularity (Jacobson, 2003) and there is relatively little direct information or research concerning the relation between multiage classrooms and special needs or at risk students. Lankutis and Kennedy (2002) describe the value of a multiage class in facilitating the use of assistive technology in a K-8 setting. Gerard (2005) describes a group of 29 nine to eleven year old students in an inclusive classroom composed of special needs, learning disabled, Title 1, physical disability, and English as second language students. She writes, “…the reviewer could not distinguish the children with special needs or the second language learners [videotape analysis] in the group. The children with ‘labels’ interacted as all other class members [italics added]” (p. 248); the potential benefit for multiage is supported by others who suggest that multiage facilitates inclusion (Stuart, Connor, Cady, & Zweifel, 2006).

Purpose of this paper

The purpose of this paper is to present evidence from interviews the authors have conducted for other research purposes that relate to at risk or special needs student success or lack of success. Data come from two different settings of schools. One set of interviews occurred in a western state from 1991 to 1993, a second set of interviews occurred in a southern state in 2006. None of the interviews emphasized ‘at riskness’ or special needs. Consequently, the comments made by those interviewed and presented here are tangential or accidental within the context of the total interview.

Interviews from 1991 to 1993 had been transcribed from prior research. They were on-site, face to face interviews with the exception of one phone interview. The more current 2006 interviews were transcribed from videotapes of focus groups as well as one-on-one interviews. Responses are presented as manifest text with no attempt to look for underlying factors or generalizations.

Interview Data

1. Context: This was a K-6 elementary, 465 students, in a rural section of a large county school district in a western state in the U.S.; “blue collar workers, most kids don’t live with both biological parents, a few Hispanic students”. Interview was in November of 1992 which was also the first year of implementation of the grades 4, 5 and 6 multiage classroom.

   [Dialogue is about the logic for beginning the multiage which lead to some talk about outcomes.]
Response from the principal:

... taking those children who do not qualify for special ed. services but who are having a problem in either reading, math, or language arts in the lower three stanines [Stanford Achievement Test] who need remediation anyway and putting them in a class, and we’ll make it a four, five, six multi-age... [one teacher in the classroom]

... in fact the fourth graders are really learning, more than they probably would with their own group of children, you know and the sixth graders are taking the fourth and fifth graders under their wing, and tutoring them, for want of a better word. It really has improved their self esteem as a group.” (D. Holman, personal communication, October 1991) [Comment: In February, 1992, a principal from a Midwestern state and Dr. Holman visited this class. The principal asked if it was a class for gifted and talented!]

II. Context: This was a k-6, 425 student (+/-) elementary school from a different school district as the interview above, but in the same state and region of the state. Multiage had been in this school for a number of years and had an established history at the time of the interview.

[Dialogue is about why discipline problems are ‘almost nonexistent’ in their multiage classrooms; the topic is the playground.]

Interviewer: Why would that be?

Camaraderie, they are part of their class and teachers expect that kind of activity! We put one little guy in there, he was totally hyper, driving his teachers [traditional classroom] nuts. He was actually a third grader, we put in the MAG [Multi Age Group] class, his playground activity dropped off radically because there were others; as far as being out of line—there were others there to help him control himself and anything that happened, he would have to own up to what he had done. It wasn’t so he could bully others around. He is now in [an institution] under 24 hour care yet, in the MAG, we got him to do better than he had ever done. (D. Holman, personal communication, September, 1991)

[Same principal]

Downs Syndrome Child (From fieldnotes)—A Downs Syndrome child had been put in single grade classes and was not thriving. Out of desperation the principal put the child into a MAG group, expecting the child would be the brunt of jokes and again not be successful. The MAG students “took him under their wing” and within a few days the child was thriving. What is notable about this is the principal made this placement only out of desperation, expecting that the child would not be able to function in the MAG. The principal commented that the only problem he had was when the Downs-Syndrome child was picked-on while on the playground, the rest of the MAG students defended the child from the other non-MAG students. (D. Holman, personal communication, February 1992)

III. The following interviews were completed as part of a study, in a Southern state, to determine how multiage students were functioning in high school. All students in this group came from a single, k-4 primary elementary school, one of four elementary schools in the district.

Context: Multiage in this elementary school existed from 1995 to 2000; in 2001 the multiage structure was abandoned in light of district curricular decisions. The school was approximately 400 students from a lower economic community. The following interviews were a combination of focus group and individual interviews of the building principal, curriculum coordinator, parents, and students taken in 2006 as part of a follow-up study of multiage student performance in high school. The principal had 30 or more years as an elementary educator.
Interviewer: ... when you said one year you did not paddle any students, could you talk a little bit about that? [Spanking students is still an acceptable form of student discipline in certain states.]

... Well, I could say also that year that we didn’t paddle any children and we had 5 special education kids in the whole school (400+/−), how many do you have now, 40 which you have a lot more kids now (500+/−)... we didn’t have kids in special education, the kids were there but they were making it in the regular classroom and the teachers were attending to their every need in the regular classroom [emphasis added].

Focus group interview of 7 teachers from the same multiage elementary school

... but, with multiage the ones that needed to stay a little bit longer on a skill were able to do that without feeling like they were a failure.

... right, plus we had some during those three years that could stay an extra year or stay three years, it would never bother them or the parent either because they were still in that group, which was a big plus. And the ones that were behind would be able to be leaders because it wasn’t that they failed it, but they were just more familiar with it (the class) and could take the leadership role. We had two or three that stayed and it really helped them, and they didn’t take that as they failed.

Focus group interview of 8 multiage students

Victoria has ADD! [Unsolicited statement referencing one of the students being interviewed] ... I think it was good for like friendships though, cause like Victoria, we have been, and Heather, we were all in the same class and were all friends and ... so many years later [high school] and we are still friends ...

Focus group interviews of 9 multiage teachers, former teachers who taught multiage

... I mean teachers had to collaborate ... I know they had a problem with one student and ... they would ask ‘are you having the same problem?’ it was more of a problem solving ... trying to figure out what to do instead of just ‘I have a student in my class that doesn’t understand so I can’t teach anything!’ . It’s not like what’s wrong with him [student], its what can we do differently?

Face to face interview with the District Curriculum Coordinator

... It helped out a lot with out having to go through the retention problem!

Interviewer: How so?
Discussion

From these passages one can have a sense of optimism about the potential for meeting the needs of at risk and special needs students. The educators and students in these interviews suggest that very low performing students, students with Downs-Syndrome, as well as others may succeed in multiage environments. Relationships can be developed that extend through time and may be potentially life-long. The damage caused as students are retained can be mitigated, and if the observation of the curriculum coordinator is accurate, they can become leaders in their classroom. When retained students become the senior members of the classroom, they are able to guide new students in adapting to the unfamiliar setting. These observations are of course anecdotal and only provide a suggestion of what is possible. However, from multiple schools in different cultural settings, there is hint of the benefit of multiage classrooms in helping students who may have a difficult time when being schooled. Ideally, RTI occurs in the classroom to catch students early, prior to developing habits of failure. Multiage environments are positive for students and may accomplish much of what RTI intends without special additive features. The facilitative effects of RTI should be enhanced if added to a classroom that is already predisposed to being successful with at risk or special needs students.

References

Urban Education
Forum Theatre—an approach to working with teacher students’ practical experiences

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Introduction

During their teacher training students from Blaagaard Teacher Education College each year participate in one or two teaching practise periods, each of several weeks’ duration. The students in the main subject, Danish as a second Language (DSL), often choose to do their practice periods in schools where linguistic and cultural diversity are widespread.

When the students return from these practice periods, they often give expressions to problems they have had in the multicultural classroom. Some of the conflicts or dilemmas were not solved in an appropriate way and as a method of evaluating and learning from these situations we work with the Forum Theatre.

In this contribution we present our work with Forum Theatre as a method to evaluate experiences from teacher students’ practice periods in urban settings in Copenhagen.

We will focus on the connection between evaluation of practical experiences and development of cultural understanding and intercultural competencies (section 2), on the aims and elements in Forum Theatre (section 3) and on how we use the method with the teacher students (section 4). Finally we give examples of the students’ stories (section 5) and in the conclusion (section 6) we give a final assessment of the method.

Intercultural competence and “reflection-in-action”

In accordance with the curriculum for Danish as a second language (DSL) at Blaagaard Teacher Education College, intercultural understanding and competence are important elements in the education of the students. It is emphasized that the students in a reflective manner must be able to dialogue with pupils and their parents representing other cultures and thereby be able to teach in the multicultural Folkeskole. To be able to do this the students must be aware and conscious about their own cultural understandings. They must in other words be interculturally competent.

The Danish cultural sociologist Iben Jensen’s definition of intercultural competence is: “Intercultural competence is to be capable of getting on in a culturally diverse society” [1]. The essence of this understanding is that you will become interculturally competent by living and acting in culturally diverse societies. But Jensen also stresses that competences are acquired or learned rather than abilities that we are born with (ibid).

For the teachers-to-be, this means that they through practicing can obtain the qualifications to take a professional stance on the different roles that culture plays in different situations. This demands an open approach to the cultural differences but not a specific view on, for example, integration.

Being interculturally competent in this understanding means having an open approach to the subject and to other people’s understandings of the world.

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1 The teacher training programme is of 4 years’ duration. The programme includes teaching practice at a school for a total of 24 weeks.
2 The Folkeskole is the Danish public municipal primary and lower secondary school for children between 7 and 16.
3 Jensen.2007–10.
Being a professional teacher with intercultural competence in urban settings means being open minded and capable of arguing professionally for one’s views.

On the other hand this also requires knowledge and reflections upon the cultural Other and of the cultural Self. In her work, Jensen introduces an analytical model for intercultural communication where cultural pre-understanding and cultural self-understanding are some of the analytical tools. Cultural pre-understanding is in short the general knowledge, the experiences, emotions and approaches we have towards a group of people with whom we do not share a cultural community⁴. Cultural pre-understanding might be both simplistic and based on prejudice. Cultural self-understanding on the other hand means the ways in which an individual defines his or her own cultural community⁵. Cultural self-understanding and cultural pre-understanding are in accordance to Jensen always inter-dependent, meaning that when constructing the cultural Other we automatically produce a narrative about ourselves and how we are not. Cultural self-understanding is therefore often idealized.

The practice periods offer unique opportunities for the students to collect experiences of their own and other teachers’ cultural pre-understanding of ethnic minority children and afterwards reflect upon their cultural self-understanding.

Donald Schön uses the idea of “knowing-in-action” and “reflection-in-action”⁶. “Knowing-in-action” consists of the knowledge we use in the action. “Knowing-in-action” is revealed by our spontaneous, qualified actions and we are often not able to explain it in words. On the other hand it is sometimes possible by observations and reflections upon our actions to describe the tacit knowledge that is a part of them. “Reflection-in-action” consists of the process of thinking and making a change in the concrete situation. The purpose of “reflection-in-action” is to convert what we are doing while we are doing it.

In teaching practice periods the students experience lots of “knowing-in-action” (their own, their fellow-students’ and the Folkeskole teachers’). These first hand experiences are the material for starting a process of turning “knowing-in-action” into “reflection-in-action” back at the Teacher Education College.

The fundamental aims and elements of Forum Theatre

Forum Theatre is devised by the Brazilian theatre manager Augusto Boal (1931–) and is also called the Theatre of the Oppressed. The method bases its work on the experiences of social and personal oppression that the participants have in their daily lives. Forum Theatre therefore works with people directly in order to create a picture that is based on their understanding and interpretation of events. Boal got his inspiration from the Brazilian pedagogue Paulo Freire and his ideas of awareness through dialogue and participation.

In original Forum Theatre, a group of actors go into a community, elicit what key issues of concern are to that community, improvise a short piece of theatre highlighting those problems, and perform it back to the community for the community to debate and find their own solutions.

In Forum Theatre, the participants can actually see and experience the problems and subsequently attempt to solve them. During the actual play, solution models will be presented by those taking part. It is of decisive importance that the people of the community, who are the audience, try new solutions by changing the attitude or the acting of the oppressed people in the play. As Boal says it might seem rather difficult to get rid of the political leaders but it is more realistic to start changing the attitude and the way of acting among the victimized people.

⁴ Jensen. 2007:104.
⁵ Jensen. 2007:107.
⁶ Schön. 1987
Forum Theatre is therefore a conflict solving method. It is also a method to show verbal as well as non-verbal communicative relations between people, and it is a tool to create an inter-human understanding.

The aims of Forum Theatre

- to transform the participant from a passive body into an active co-producer and protagonist
- to give people an opportunity to practise for real life
- to prepare for the future
- to break internal and external oppression.

The roles and elements in Forum Theatre

In a Forum Theatre play the roles and elements are as follows:

The actors: The group that takes part in the dramatization. This group consists of 4–6 people.
The audience: The participants that are not performing the play.

The joker: Conducts the play and is a central figure. The joker must make the actors as well as the audience (who are potential actors) deal with the problems that are pointed out. The joker is not allowed to take control of the play. He can only guide and assist. The joker cannot express his own opinions. He must attempt to bring out the other people’s opinions by making sure that they play an active role in the forum play.

The stories: The stories come from conflicts that the participants themselves have experienced. In most cases, we deal with conflicts that are caused by linguistic and cultural diversity.

How we use the method with the students

When we begin the method, we make a short introduction to Boal and his life and work. Afterwards we tell the students about the different phases which are:

1. Group warm-up exercises
2. Story telling in groups
3. Acting
4. Evaluation on the method and on the day

We use the following group warm-up exercises.

Statue exercises: The participants form groups of two. One (A) is an artist and the other (B) is “clay”. A uses B to create a statue that expresses some of the ideas about for example cultural diversity. All the artists (the “As”) go to the “exhibition” to look at the statues (the “Bs”). They can ask the statues questions if they tap them on the shoulder first. The same exercise can be done with a couple of artists making a statue out of 4–5 people. When the statue is created, the audience can ask the individual people in the statue: Who or what do they see themselves as in the statue? What are they doing in the statue?

Take-a-stand-exercises: We draw a chalked line on the floor and put the numbers 1–6 on the line with the same distance between each number.

The number 1 represents total agreement.
The number 6 represents total disagreement.

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7 The following paragraphs are based on the writings of Jan Jonasson (see the list of references).
The joker then reads out a statement. The participants go to the number that represents their degree of agreement with the statement. The joker can ask why they have chosen the number they have gone to. This way, the participants can see with their own eyes who agrees with what, and it is possible to discuss why the participants have these views.

Examples of statements in relation to linguistic and cultural diversity:

- All children should be treated equally irrespective of social or cultural background.
- The schools should put a limit to the number of immigrants they admit.
- It should not be the school’s task to maintain the cultural heritage of the immigrants.
- In the working relationship between the school and the home, it is important that the teacher gets to know the family, and that he visits them in their homes.
- The syllabus should be revised. Old Danish material should be replaced by material and disciplines from the bilingual student’s native countries.
- The ability to speak Danish is essential for a successful integration process.
- It is necessary to give lessons in the pupils mother tongues in order to offer same possibilities for all pupils.
- It is necessary with bilingual education in order to make different cultures co-exist in the multicultural society.

Then the story telling phase begins. We ask each of the students to think of and select a situation, which for them illustrates cultural or linguistic diversity or both. The participants form groups of 4–6 persons in which they tell authentic stories that are related to problematical meetings between languages and cultures. It is important that the stories are based on the participants’ own experiences. When all the members of the group have told their stories, the group chooses the story that they think illustrates a linguistic or cultural dilemma in the best way.

The person who experienced the situation is hereafter the director of the play. This person organises the course of events together with the rest of the group. The situation should be depicted as realistically as possible.

When the situation is played for the other participants, the actors build up to the actual conflict. It is important to make sure that the conflict is obvious.

The actors stop the play before the problem, the conflict or the dilemma is at its worst. This part is called an anti-play. So the actors do not present a solution to the problem. This is the audience’s task. The joker asks the audience to describe what they have seen and together we agree upon who was victimized or oppressed in the situation. The person chosen is the one who is going to be replaced by a member of the audience.

The situation is then acted out again, and this time, it is up to the audience to stop the play when they think they have an alternative solution to the conflict. If nobody intervenes, nothing has changed and the situation remains unfair. Nobody will have made a change in the world. So it is up to the audience to stop the situation and take the place of the victimized person.

When the situation is acted out the second time – hopefully with an attempt by a member of the audience – the joker stops the play again to discuss with the participants whether the conflict was solved. The joker also asks the actors how it affected them when the situation was changed. Did it change their behaviour? Why? Why not? Do they feel that the conflict has been solved?

In the evaluation of the method and of the day, we talk with the students about how it felt being audience and actors. Often they say that acting is a very good way to evaluate the problems that they have expe-
rienced in the schools. They stress that Forum Theatre is a good method of evaluation because it is not based so much on spoken words but on using the body to show and live out the experiences. During the actual plays, solution models have been presented by those taking part. Misunderstandings have been cleared up through active and physical actions.

Finally we talk with the students about the possibilities of using elements from the method together with the children in the schools. The exercise with take-a-stand might be used to make silent pupils express themselves in the classroom. The elements of using the role play to reconstruct a situation might be used e.g. in cases of bullying among the pupils. The discussion of what happened, and the different solutions might give the pupils a common conception of mutual rules of behaviour.

**Authentic stories**

**Story 1**

We are in a canteen in an institute of education in Copenhagen. There is a queue at the till where a woman from Bangladesh is working. The student who is at the front of the queue asks her where she is from. The checkout assistant replies that she is from Bangladesh. The same student asks if there are many of her kind in Copenhagen. The two students who are standing next in the queue see and experience the situation. They feel ashamed, but they do not say anything.

After several discussions, the group decided to replace the checkout assistant, but many of the participants felt that the students who saw what happened but did not react were controlled by the norm saying “do not interfere with other people’s affairs in public”. One of the actors stopped the humiliation of the checkout assistant by changing her reply from “I am from Bangladesh” to “I am from Ishøj” (an area in Copenhagen). This solution was discussed and accepted by the group and by the person who experienced the case. The solution shows that the student looks upon the checkout assistant as an individual person with an ordinary membership of the country of the majority and not as a stranger representing a whole nation of the emigrants. The self estimation of the checkout assistant changed by perceiving herself as a citizen from Ishøj.

**Story 2**

A teacher student asks her pupils for the essays they have prepared as home work for the days lessons. The teacher student passes along the rows and the pupils give her their essays. Not all the pupils have done their home work and those who have not, explain why. The student now asks a bilingual pupil for her essay and the pupil shakes her head and says: “tha… tha..” The teacher student gets uncertain and feels almost angry because she feels that the pupil does not respect her as a teacher answering only with a sound.

The situation was solved by another student who asked the bilingual pupil about the meaning of this sound. By doing that she used the method of asking in cases where you meet things or situations you don’t understand. This case caused a great discussion about language, non-verbal expressions, body language and dress codes. Many examples of non verbal expressions and body language from different cultures were given and were interpreted and related to the well known Danish body language and non-verbal expressions.

We had relevant discussions of the relation between culture and body language. Not knowing about these issues might result in conflict escalations. In the same discussions the teacher students also become aware of their own limits to dressing and corporal attitudes among pupils at school.
Story 3
A teacher student introducing a project on “Life skills” for pupils of the ninth grade encounters difficulties when he tries to involve the whole class in the discussion. A group of pupils with Muslim background will not discuss the big questions in life because they say the Koran has all the answers. The conflict gave rise to many discussions about whether problem-orientated teaching methods against more deductive learning methods were culturally conditioned or not. Eventually a participant with immigrant background took the place of the student and spoke to the class from the point of view of the Commandments of the Koran. By separating religion and tradition, she was able to open the bilingual students’ rigid answers. And by giving the dilemma that solution she showed intercultural competence applying her knowledge of what is religion and Commandments of the Koran and what is tradition. The participants agreed upon the importance of having certain knowledge of the Koran in order to see through the excuses of some pupils with Muslim backgrounds.

Story 4
During her school practice period, a teacher student participates in the meetings between the teachers at the school and the families. These meetings take place in the late afternoon and in the evening. A bilingual family turns up to the meeting in company with an interpreter. Our student is present in the classroom. The Danish teacher who is responsible for the meeting seems very busy and not very concentrated. When the interpreter translates for the parents the Danish teacher is looking at the watch and her body language expresses total indisposition with the situation. The teacher starts to interrupt the interpreter and indicates that time is very short. The teacher also gives a comment on the interpreters’ way of doing her job. The meeting ends suddenly without any conclusion because the teacher asks the family to leave because the next family is waiting outside.

The solution which seemed the best in this case was one where the teacher had set aside more time for the family with the bilingual child. At the same time the teacher had to show confidence with the work of the interpreter and accept that speaking their mother tongue does not mean that they speak in a negative way of the whole situation. In this case intercultural competence also might be a question of understanding a different vocal pitch combined with a different body language and gestures.

To have meetings at the schools with the families is a part of the Danish school system. Many bilingual families are not accustomed to this kind of situation and considering this fact it might also sometimes be a solution to visit the family in their own homes in order to talk about their child.

Conclusion: Assessment of Forum Theatre as a method of evaluating

Generally our students give a positive assessment of working with the Forum Theatre. The method offers them a lot of possibilities for interpreting situations from the multicultural classroom including important issues as the body language and the pragmatic competences in communication. We refer for instance to how you express politeness, to rules about linguistic feedback, about when and how you take over in a conversation and rules about how you structure a conversation. These are matters with strong cultural indicators and might therefore serve as an appropriate object for knowledge about our cultures.

Nevertheless it is important as a teacher to make sure that the students want to play the role. Working with theatre and role play in general as an educational method requires a positive attitude amongst the students. Nobody has to be forced in roles they don’t want to play. We have had an example of a student who didn’t turn up to class because he knew that we where going to work with Forum Theater.

Some times it causes problems for the students to find stories from their practice periods. It might be because they doubt whether their stories concern cultural matters or not. This situation gives good reasons for reflections and dialogues about what is concerned to cultural matters and what is not. Another
difficulty might be the fact that some students do not think that their story is good enough and therefore everybody is waiting for another person to tell their story. We interpret this as a kind of shyness or lack of self-confidence.

In spite of these difficulties we see Forum Theatre as a suitable method because it is based on the real experiences and problems—in this case of being a teacher in the urban education system and it aims to create a common basis for thought and action. Most importantly, we find Forum Theatre a good method of evaluation because of its active and physical nature. Using the body to show and live out the experiences also qualifies the method as an intercultural method. We believe that a lot of learning and acquisition take place unconsciously by practical experiences and by acting. Because of the many discussions and reflections we make during the play we give different points of views of what is cultural understanding and how we as teachers deal with the reality in the multicultural classroom.

The students become aware of their own limits and get conscious about phenomena they usually take for granted often have got cultural explanations. By having such dialogues everybody develops their intercultural understanding which consists of getting a realistic cultural self-understanding as well as a nuanced cultural pre-understanding.

References


Books by Augusto Boal:

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Governmentality Reconsidered

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Abstract

Governmentality is Foucault’s theory on the ways humans unofficially govern among themselves despite and in conjunction with institutionalized governing hierarchies, bodies, and structures. Expanding upon this notion of governmentality, this paper explores governmentality as an intersection of technologies of power and technologies of the self, considers the ways it functions in domination (government-ality), submission (govern-mentality), and resistance (counter-governmentality). I also draw upon Freire and Baudrillard to consider the ways an expanded notion of governmentality allows for a re-consideration of relations of power and formation of the self.

Governmentality: Intersecting technologies of power and technologies of the self

Through technologies of power and techniques of government, states of domination are established and maintained (Foucault, 1997a). Government, in this context, relates more to the practices of governing in interactions among individual than the institutions of government. Thus, government by institutions or from a hierarchy above is dependent on governing by individuals. Foucault turns away from analyses of laws, institutions, classes, privileged positions, ideologies, and hierarchies, and instead considers forms of relations in which one attempts, successfully or not, to control another, others, or the self. In this view, government is local and emerges not from above, but from within discourse among individuals in relation. Governing then is not forced down on individuals, but is exercised on the level of the individual in relations of power.

For Foucault, power is always already. It has no starting point, yet has always been. It is not given, taken, exchanged, or recovered; neither is it simply a matter of economics or application of force. Likewise, power in and of itself is not bad or evil, but rather comprises games of strategy (Foucault, 1997a). Foucault sought to understand the rules resulting from the implementation of power relations, particularly in the production of truth (Foucault, 1980) by focusing on tactics, devices, and tools, not positions or institutions. For Baudrillard (1987), power is already dead when people begin to think of it as held within institutions or structures. Of course, the death of power does not mean that power is not recycled in simulation. For Baudrillard, the simulation is not real, but virtual, even though we may treat it as real. Individuals are not just ends of power, whether conceived through Foucault or Baudrillard; we are also its means, serving in the constructions in others and the self. At this intersection of forming others and the self is governmentality.

Government-ality: Domination and others

Government is the instrument and concrete result of the verb, to govern, and -ality stresses that the instrument of governing is part of (-al) a state, or condition (-ity). With government-ality, then, individuals assume the state or condition and become part of the instrument of governing others. More simply stated through government-ality we become the instrument that does the work of governing the actions and attitudes of others; we become the means to the end of the governed other.

Government-ality occurs in relationships when one attempts to control the behavior of others (Foucault, 1997a; Huckaby, 2005 and 2007) by enacting techniques to direct, shape, or force others into certain ways of being. The strategies may be subtle—disapproving looks, sounds, or even silences and
ignorances. They may be directives, threatened aggressions, or enacted violences. They may also be
passive actions of non-governing those, who actively governs others. Governmentality, as an assertion
of dominance, may be used to establish or reify domination over other(s) or rearticulate oppressive rela-
tions of power. Much like power, governmentality does not function solely through repression. To be
strong, power and government-ality must be effective on the levels of desire, knowledge, and produc-
tion. Therefore, an action as simple as the possibility of approval or reward offered may more effectively
govern than a gesture of disapproval or punishment.

We weave worlds with words.

Mrs. Jane Elliot, in the now iconic documentary The Eye of the Storm (Peters, 1970, 1991), de/re/con-
structs reality for a third grade class with words. She co-creates alternate, virtual worlds that are quite
real for the students. On Monday, she holds class as she would normally beginning with the U.S. Pledge
of Allegiance and songs. As viewers of the film, we can see her encouraging her students to be patient
with each other. The students are all white, protestant members of a rural farming community. On Tues-
day, Elliot begins to change the world with the words, “Brown-eyed people are not as good as blue-eyed
people.” She offers examples of her thesis by using students’ experiences and behaviors. After stating
that brown-eyeds must use paper cups and cannot drink form the fountain, one brown-eyed boy uses a
cup and throws it away. Elliot responds, “Brown-eyeds are wasteful.”

Soon, the students embody the new ideals of brown-eyed-ness and blue-eyed-ness, and the children’s
bodies transform before the camera. Some become animated with excitement as illustrated by one girl
with blonde hair who pulls her body up several inches and broadens her smile as Mrs. Elliot explains that
George Washington had blue eyes. Other bodies sink and slump. A girl with brown hair, for example,
collapses into her belly, shifting her shoulders forward as her face frowns, when the blue-eyed children
create their own rules for brown-eyeds. One boy suggest that Mrs. Elliot keep the yard stick close at
hand in case the brown-eyed students act like brown-eyeds, and another suggests that she warn the caf-
eteria staff that brown-eyeds will be in the lunch room and need to be watched carefully so they do not
return for second servings. The community moves uncomfortably quickly into a bifurcated society in
which one group is excessively governed by the other group. Only one boy actively resists, but Elliot
rather easily uses his resistance against him.

On Wednesday, Elliot begins to re-constructs the world in the classroom as she says, “Yesterday I was
wrong. Blue-eyeds are not better than brown-eyeds.” The one boy who resisted the previous day ex-
presses his concern, “Oh, boy.” The rest of the children are silent, but the brown-eyed children show
pleasure and excitement in their faces as they begin to hear Mrs. Elliot reverse the rules, while the blue-
eyed children look fearful.

The techniques of governmentality deemed appropriate for certain individuals and not others are con-
textualized discursive formation of truth. Elliot’s class demonstrates this differentiation as they quickly
learn, act upon, and create rules for treating students as though it is true that better people can be iden-
tified through eye color. The result is that specific aspects of individuals’ lives, bodies, experiences,
attitudes can be managed depending on identified characteristic(s). Such governing has political value
through the offering of privileges to some and disadvantages to others. Truth games, which have solidi-
fied the categories of race, citizenship status, language, class, gender, sexual orientation, and so forth,
utilize power and politics to demarcate not only certain groups of individuals, but also techniques of
governing through government-ality as a form of domination.

Govern-mentality: Submission and the self

While the concept of government-ality, explores the “relationship in which one person tries to control
the conduct of the other” (Foucault, 1997a, p. 292) as a form of domination, Foucault also used govern-
mentality to describe the intersection of technologies of the self with technologies of power to govern the self (Foucault, 1997b). Govern-mentality is the use of technologies of power to control the self by internalizing technologies imposed by others (Foucault, 1997c; Huckaby, 2005 and 2007).

Govern-mentality and government-ality are not the same. The first distinction is between govern and government. Govern, a verb, connotes the exercise of authority or control. Government, a noun, is an instrument of governing. Mentality may be read simply as a way of thought (mentality), as well as, the state or condition of (-ity) one’s emotional and intellectual response to the local environment (mental). Thus, govern-mentality is the emotional and intellectual response that allows one to govern the self through ways of thinking and being that conform to local discursive environments.

Foucault treats the self as an object constructed through discourse; true not in its materiality, but through discursive formation. Instead of attending to the material body, Foucault focuses on how individuals constitute themselves in different forms. Technologies of the self are then the ways one exercises oneself within relations of power, and govern-mentality is an adoption of the rules of governing for the purposes of forming the self to the ideals of the discursive world.

Govern-mentality may be used to self-govern as a form of submission in relations of power. In response to subtle or obvious, gentle or aggressive forms of government-ality, one may govern the self to avoid undesirable experiences; such as disapproval, the loss of status, physical violence, and the like; or to satisfy desires; such as getting a promotion or raise, receiving approval, or improving social status. Either way, the knowledge and corresponding behaviors of the discursive environment are accepted as expressions of truth for the self.

We are woven into worlds with words

Maya Angelou, the legendary poet, writer, and actor, explains the power of words to Dave Chappelle in their Iconoclast (Berlinger and Sinofsky, 2006) paired interview. Angelou suggests to Chappelle that we need to be careful with words because they are things:

Angelou: It’s non-visible and audible only for the time it’s there. It hangs in the air, but I believe it is a thing. I believe it goes into the upholstery, and into the rugs, and into my hair, and into my clothes. And finally even into my body. I believe that words are things and I live on them. I look at the word, the N-word, which I really am obliged to call it that because it was created to divest people of their humanity.

Chappelle: Absolutely.

Angelou: Now when I see a bottle come from the pharmacy, it says, “P-O-I-S-O-N,” and then there’s skull and bones, then I know that the content of that thing—the bottle is nothing—but the content is poison. If I pour that content into Bavarian crystal, it is still poison.

Chappelle: Whoa.

Angelou: I’m just saying, I’m just saying, mind you, it’s just an idea that words are things.

Chappelle: We do not only weave worlds with words. Words, and the actions that follow, form who we are.

The teenager, Kiri Davis, in her award winning documentary, A Girl Like Me (2005), explores the ways blackness and whiteness transform not only the consciousness of black youth, but also the ways ideas, ideals, and stereotypes are used in self judgment and transformation. Of particular interest is the replication of Kenneth Clark’s 1950s experiment with black children dolls, and the children’s use and interpretations of the words nice, bad, black and white.
Young children sit at a table where a black and a white doll are laying. Davis asks the children questions: Can you show me the doll you’d like to play with? Can you show me the doll that is the nice doll? In response, one boy picks up the white doll. When asked why this doll is the nice doll, he responds with a smile, “Because she’s white.” The young children very blatantly with matter-of-factness conflate nice with whiteness and bad with blackness.

Watching the last child of the experiment portion of the video is heart wrenching. Davis asks a girl, “Can you show me the doll that looks bad?” The child selects the black doll, holds it up for Davis and the camera, and explains with an expressionless face, “Because it’s black.” Davis then asks the child which doll is the nice doll. Choosing the white doll, she holds it up, and responds, “Because she’s white.” Interestingly, the child uses the pronoun for an object (it) to describe the black doll and the pronoun for a person (she) for the white doll. Davis follows with another question, “Can you give me the doll that looks like you?” The child intuitively reaches for the nice doll, and pauses as she compares the two dolls as if she realizes that her skin is not white. Instead of reaching for the doll with black skin to hold before the camera, as she did in response to the previous questions, the little girl pushes the doll towards Davis.

(See http://www.mediathatmattersfest.org/6/a_girl_like_me/.)

One of the more poignant moments in The Eye of the Storm (Peters, 1970, 1991) is when, as viewers of the documentary, we glimpse into the ways Mrs. Elliot’s manufactured world, an illusion created with words and actions, becomes reified in what the children can and cannot do with a card pack lesson. Through internalization (governmentality) of the governing executed by Elliot and classmates, the students’ academic performance parallels their eye-color status. They cannot think effectively in their lesson when they are on the bottom, and explain that they are focused more on their low status than the lesson. When they are on top, however, they seem brilliant, and articulate their freedom from worrying about their eye color. In moments such as these, the film shows how the children are both the means for discriminating based on eye color and the end embodiment of such distinctions. Because Elliot was explicit in her weaving of the brown-eyed/blue-eyed worlds with words, the students are able to notice and articulate how and why their academic performance changed. (See http://janeelliott.com/Merchant2/merchant.mvc?Screen=PROD&Store_Code=J&Product_Code=JE-26).

In our daily lives, we are formed and shaped through govern-mentality (and government-ality) in ways we do not identify or acknowledge. All of us are exposed, in the repetitive moments of our daily lives, to discursively formed illusions that masquerade as truths about ourselves and others. None of us is exempt. The words and actions that form these discourses are not real, and the worlds we have created with them are false simulations. It is not really true that eye color and skin color determine goodness, badness, or intellectual ability, even though these stereotypes are made to seem real.

The techniques of govern-mentality take on and impose upon the self the words that linger. Thus, governmentality is a form of submission to a false virtual world that is reified in our bodies. While the illusionary words are not true, the submission to them, and transformed bodies and mentalities are very much real. As Angelou explicates, words are things that linger in the air and find their way into our beings and bodies. And some of them are poison.

Counter-governmentality: Resistance, technologies of the self, and technologies of power

Government-ality and govern-mentality create situations in which possibilities for our lives are limited by discursive formations. While those who receive privileges may be less aware of limits than those who experience disadvantages, the real possibilities for all of existences and shared existence are restricted. Freire (1989) describes these as limit-situations. Governmentality may also serve as a form of resistance to external control and domination (counter-government-ality) and internal forms of submission (counter govern-mentality). Counter governmentality is the resistance to govern-mentality and government-ality, as well as the use of government-ality and govern-mentality (Huckaby, 2005 and 2007) to counter-
act undesirable formations of the self and others within discursive environments. Of course this counter
governmentality attends to forming the self into a desired ways of being that oppose the undesirable
forms that society may want or expect.

Counter-governmentality publically challenges and denounces false and harmful government-ality., and
therefore requires the study of governmentality even in its subtle and seemingly benign forms. It like-
wise offsets destructive forms of govern-mentality, and acknowledges that acquiescence can come in
many forms through the relinquishing of one’s purposes for those of others. Counter-governmentality
may help one to resist forms of government-ality and govern-mentality, even though it is not possible for
any individual to escape governmentality in any form. One may, however, use counter-governmentality
in the areas deemed most important, while realizing that complete escape from governmentality is im-
possible and likely impractical. Counter-governmentality, therefore, serves as a counter balance to forms
governing that maintain the status quo, particularly in its oppressive forms.

We can work to unravel untrue worlds, but first we must distinguish the illusion from the real.

What seeing creatures do with mirrors is fascinating. Some birds, for instance, will interact with their
mirrored image as though it were another bird – singing to it, glancing at it, pecking it. Cats also en-
gage their images in mirrors. With a full-length mirror leaned against a wall, a cat will play with its
reflection—pouncing at it, batting it, leaping away from it, and rolling on its back to look at that other
cat from a new perspective. In fits of excitement, a cat will try to catch the mirrored cat from behind by
running into the space between the mirror and the wall. Finding only the absence of another cat, it will
look around shocked, and then begin sniffing for signs of what must have seemed like an amazingly
quick and agile feline. Eventually, wandering in front of the mirror, it will reinitiate the play upon see-
ing the other cat. Cats do not seem to learn that the cat in the mirror is not real, but dogs are not easily
fooled by the illusions of mirrors. While they may engage a mirror or even bark at the image, dogs tend
to ignore the dog in the mirror after giving it a good smell. Relying on olfactory senses as an indicator
of reality, dogs can identify the reflection as not real. For the birds and cats, relying on sight, the image
in the mirror seems real enough to engage responsively.

In order to unravel discursive false illusions with counter-governmentally, we need to understand the
illusion and how it works—much like the cat and the bird. We also need to be able to identify it as not
real, much like the dog. Such an act is an act of identifying limit-situations. Freire (1989, 1998) suggests
that limit-situations are not the places where possibilities end, but are instead the location of possibili-
ties beginning. Therefore, to find possibilities is to locate a place to begin unraveling false worlds and
moving beyond their limits. Such actions require that we become intimate with the nuanced problem of
limit-situations by seeking a critical consciousness in lieu of merely accepting the limits (Freire, 1989,
1998). In other words, we must know the illusions and their impact on our bodies and beings. We must
see how the illusions are created with words, ideas, and actions. We must be in the illusions, but realize
they are simulations, not reality (Baudrillard, 1987).

Breaking from this virtual world into the real may only be possible by making history in present instead
of being already formed and woven by a history previously narrated. Counter-governmentality is finding
ways to the reality and possibilities of our beings through letting go, moving away from, and rupturing
from the illusions that have formed us. While some things that we believe to know as core to our beings
will be realized as untrue and unknown things will become real; other things may surprisingly remain
consistent. But we may not know which is which.

The work of counter-governmentality is an ontological paradox that may require a shifting between the
too well know discursively formed illusions of governmentality and the not yet known reality of possi-
bilities. One aspect of the paradox is our entrapment within an illusion that is made too real through our
bodies, even though it starts in untruths that are harmful and oppressive. The other side of the paradox is
the realness of our existence that is unable to materialize because the illusion prevents us from knowing ourselves.

The chimera—a biological characteristic of having at least two genetically different tissues or a mythological creature made of heads, body, and tail of three creatures—may be useful. But first, we need to move past the discourse that has formed the mythological chimera as unsightly and the biological chimera as unnatural in order to see how the chimera might function and what it may offer. Because the chimera is more than one, it can use the abilities of each animal as necessary for the situation or offer resiliency from one tissue when another is vulnerable. An aviary/feline/canine chimera, as an example, is worthy of consideration. The aviary/feline creatures of this chimera could help us understand the illusion we know too well. It might help us address the questions necessary to intimately knowing the limit-situation through critically understanding the too well known illusion:

- What is the illusion?
- How does it form us?
- What does it make us do?
- How does it distract us?

The canine creature of the chimera might help us sniff out the falseness and begin to notice a reality we do not yet know, and could help us respond to equality important questions about a reality, beyond limit-situations, that we do not yet know:

- If were not distracted, what might we do?
- What can we know about ourselves when we let go of the illusion?
- How can we be differently?
- What is or might be real?

In addition to these specific needs, we would also have all other the characteristics of the chimera—the loyalty, fierceness, forgiveness, and smell of the canine; the patience, prowess, lives, and sight of the feline; and the bird’s-eye view, nesting, agility, and flight of the aviary. The exact form of the chimera is not the important point. What is crucial is the forming of ourselves for counter-governmentality by metamorphosing into beings that can know the limit-situations well, imagine beyond their confines, see outside their boundaries, act to leave them, and illuminate possibilities for others.

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The Standards Movement and Corporate America;  
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The standards movement within the United States is inextricably linked with 20th century educational history and reform movements. This paper examines the standards movement’s roots in the 1950s amidst efforts to circumvent Brown versus Board of Education and maintain segregation in public schools and traces its path through education reform movements of past decades. The convergence of the conservative movement, the political exploitation of southern sentiment and fears, and educational reform has resulted in corporate co-option of education and schools that are more isolated and segregated than ever before.

In order to present a coherent understanding of how the standards movement is interwoven with the history of reform efforts in the United States, this paper is presented in three sections. The first section, examines events related to the civil rights movement, tracing the reaction of southern Americans to the Brown decision of 1954. The second, discusses the calls for reform that reached fever pitch in 1983 with the publication of *A Nation at Risk*. Finally, the rise of corporate America as a driving force in education policy is examined.

Reaction to Brown versus Board of Education

Few periods in U.S. educational history have been as iconic as the events surrounding the Brown vs. Board of Education decision signed on May 17, 1954. While the decision was hailed as a milestone in our country’s progress toward equality, many, particularly in the southern states, saw it as a cultural death knell, signaling the end of segregation and a way of life among conservative southerners. Southern resistance to the Brown decision predated its signing when, in the fall of 1953, Robert B. Patterson, manager of a 1,583 acre Leflore County, Mississippi, plantation, organized the Citizens’ Council, which he described as a grass-roots movement to ensure that public schools would remain segregated. Patterson recruited the most powerful people in his community to join the Citizens’ Council and its first members included a city attorney, a banker, a dentist, a pharmacist, the mayor, and several merchants (McMillan, 1971). Therefore, by the time the Brown decision was signed, the resistance movement was already underway and successfully circumventing efforts to end desegregation in public schools.

It would be difficult to overstate the shock waves that the Brown decision created among southern citizens. On May 18th, 1954, Major Frederick Sullens, editor of the Jackson Daily News in Mississippi, wrote an editorial entitled “Bloodstains on White Marble Steps,” which contained the vitriolic language reminiscent of many of the pronouncements of the era:

> Members of the Nation’s highest tribunal may be learned in the law, but they were utterly lacking in common sense, when they rendered Monday’s decision, common sense of the kind that should have told them about the tragedy that will inevitably follow. When the courts toss common sense out the window and substitute specious reasoning, shallow subterfuge, silly sophistry and sordid politics, then our nation is in a deplorable plight. 
> 
> ... Human blood will stain Southern soil in many places because of the decision, but the dark red stains of that blood will be on the marble steps of the United States Supreme Court building.

(Sullens, in Brady, 1954)
Sullens’ words, however corrosive, were prophetic. The years following the Brown decision were marked by cruelty, violence, bombings, and murder. The beating and murder of Emmett Till in 1955 would draw world wide attention to the plight of African Americans in the south. Less than ten years later, during Freedom Summer of 1964, when young college students from across the U.S. would converge in Mississippi to register African Americans to vote, three young men, Michael Schwerner, Andrew Goodman, and James Chaney, were brutally murdered in Neshoba County. Throughout Mississippi, during the summer of 1964, in addition to the highly publicized murders, there were 4 shootings, 52 serious beatings, 250 arrests, 13 churches burned to the ground, 17 other churches or buildings damaged by fire and bombs, and 10 cars damaged (Cagin & Dray, 1988).

Southern response to the civil rights movement is remarkable on a number of levels. However, of particular interest when examining the standards movement and educational reform in general are three concepts that became a cornerstone of the efforts to resist school desegregation. First, the formation of the Citizens’ Council provided a model for businessmen and community leaders to coordinate efforts to affect educational policy and become a formidable force in the public arena. Hodding Carter, editor of the Mississippi newspaper, the Delta Democrat-Times, noted the power of the Citizens’ Council in 1954 when he wrote:

In the first six months of the Council’s existence they won each fight they’ve entered, or objective they’ve sought, without physical violence … Not a single office seeker in a state which will hold state-wide elections this summer has publicly criticized the Council, even though some have privately wrung their hands over their actions.

(McMillan, 1977, p. 35)

By mid 1956 the Citizens’ Council had 145,000 members in Mississippi and Alabama. Former head of the council, William J. Simmons declared “As long as we can legislate, we can segregate” (Patterson, 2001).

A second noteworthy element of the era of Brown resistance is the introduction of the concept of school vouchers. School vouchers are generally associated with recent educational reform efforts. However, in 1954, vouchers were vigorously promoted in certain regions of the United States.

This is not a proposal to abolish public schools. It is a proposal to put them into competition with free enterprise schools, so they can prove their worth. And this can be done by the remission to parents of the taxes they are compelled to pay to support politically-controlled schools, in an amount comparable to what they pay for private schooling. The method of effecting this remission – whether by deductions from income taxes or allowances from local levies – is a technical matter; if the principle established that a parent has the right to buy the educational service he deems best for his child, the fiscal problem [sic] of tax remission could be solved.

(Chodorov, F., in Brady, 1954).

This text, written by conservative economist Frank Chodorov, originally appeared in an editorial entitled A Solution to Our Public School Problem in the conservative journal Human Events. However, it received widespread attention when quoted in staunch segregationist Judge Tom Brady’s speech (and subsequent book) Black Monday (1954), which also contained outrageous, inflammatory, passages such as:

The loveliest and purest of God’s creatures, the nearest thing to an angelic being that treads this terrestrial ball is a well-bread, cultured Southern white woman, or her blue eyed golden haired little girl. … The contact and intermarriage of the negro with the northern white has been injurious indeed to both races. … (p.51).

While Chodorov was ahead of his time in promoting school vouchers, Milton Friedman, winner of the Nobel Prize for Economics in 1976, is credited as the originator of the voucher concept in his 1955 pa-
per, *The Role of Government in Education*, which was published while he was teaching economics at the University of Chicago. After learning that several southern states were adopting his proposal for public financing of private schools in order to evade the Brown v. Board of Education ruling, he appended his article with a note signaling his laissez faire attitude about the use of his policies by racist segregationists:

> Privately conducted schools can resolve the dilemma. They make unnecessary either choice. Under such a system, there can develop exclusively white schools, exclusively colored schools, and mixed schools. Parents can choose which to send their children to. ... (Friedman, 1955, p. 17)

School choice is a third concept that emerged from the era of resistance to desegregation that has been sustained throughout the years since the Brown decision and is currently lauded as a hallmark feature of the standards movement. For more than a decade after the Brown decision, school choice was the primary method adopted by school districts to provide a façade of compliance with the supreme court ruling. Following the passage of the Civil Rights Act of 1964, which threatened to take away federal funding from school districts that denied access to African American children to white schools, “choice plans” became the norm within southern school districts. However, it was implicitly understood that, under these “choice plans,” no white parents would choose to send their children to black schools and most black parents would not dare send their children to white schools. The few African American parents who chose to send their students to white schools were often fired from their jobs and denied much needed credit from farming supply stores. Their intimidation went further sometimes, too. The Carter family, upon notifying the school district in Drew, Mississippi, that they would exercise their choice to send their children to a white school, had their home blasted with gunshot in the middle of the night (Curry, 1995).

For several years choice plans throughout the south enabled segregationists to maintain, with few exceptions, de facto segregation in public schools. Southern resistance to desegregation was further galvanized and legitimized during the 1968 presidential campaign as Richard Nixon employed his Southern Strategy successfully by appealing to the anti-busing sentiment in southern states (Orfield & Eaton, 1996). It is interesting to note that economist Milton Friedman, the originator of the school voucher movement, after serving as economic advisor for Barry Goldwater’s unsuccessful presidential campaign in 1964, joined Nixon’s presidential campaign in the same capacity in 1968. Schriebner (1971) described the emergence of Nixon’s Southern Strategy as party affiliation identification underwent dramatic shifts after the 1964 presidential race, signaling discontent of southern whites with the Democratic party. The stage was further set during the Republican primary campaign in 1968, when frontrunners, Ronald Reagan, Richard Nixon, and George Wallace, were competing for votes. George Wallace, overtly segregationist, was consistently out-campaigning Nixon and Reagan among conservatives in southern states (McBee, 1968). By appealing to southern white conservatives and vowing to limit the efforts of the government to enforce desegregation of schools, Nixon was successful in his bid for the presidency in 1968.

Once elected Nixon actively worked toward weakening desegregation efforts and by the end of his presidency he had, partially through his ability to reconfigure the Supreme Court with four appointees, partially fulfilled his promise to the south. He wasn’t wholly successful, in part, because the Supreme Court, with their ruling in the Alexander v. Holmes County lawsuit, ordered the immediate desegregation in thirty-three Mississippi school districts in 1969 (Crespino, 2007). However, a few years later, in 1974, the Millikin v. Bradley decision had the effect of ending all desegregation efforts in urban areas, stating that any plans to desegregate schools by merging with schools outside district boundaries were unenforceable. In other words, school districts located in highly segregated and predominantly minority urban areas would remain segregated and all white school districts could remain all white as long as their official boundaries excluded minority students (Orfield & Eaton, 2001).
The Southern Strategy proved to have an enduring effect on the Republican party, as southerners embraced their new identities as conservatives (rather than segregationists). Ronald Reagan embraced the Southern Strategy when, in 1980, he announced his candidacy for president at the Neshoba County Fair (the county in which civil rights workers Schwerner, Goodman, and Chaney were murdered in 1964). According to historian Joseph Crespino (2007), Republican officials in Mississippi had designed the visit to Neshoba County to reach out to what a Republican national committeeman in Mississippi described as “George Wallace inclined voters” (p. 1).

Reagan’s election to the presidency signaled the emergence of the southern states as leaders among conservatives, particularly within the Christian conservative movement, which would be an enduring force on the political stage for the next 28 years. Crespino (2007) documents the involvement of churches and clergy in the Citizens’ Council, often speaking at their meetings and, at times, arguing that segregation is ordained and commanded by God. Although southern Christian conservatives no longer embrace segregation as a primary focus, and the Citizens’ Council’s influence had diminished dramatically in the decades since the 1960s, their alliances have subliminally morphed into a more palatable forum.

In 1985, former Citizens’ Council members aligned themselves with the newly formed Council of Conservative Citizens (CCC). Robert Patterson, founder of the original Citizens’ Council, attended CCC’s organizational meeting in Atlanta and used the Citizens’ Council’s mailing list to recruit members for the new organization. The CCC has courted influential members of the conservative movement and has been in the headlines when the former national chairman of the Republican National Party and current governor of Mississippi, Haley Barbour, attended meetings and leading Republican Senator Trent Lott spoke at a CCC gathering (Crespino, 2007).

A Nation at Risk and Education Reform

At the same time, the United States was grappling with issues of equality and civil rights other forces were competing as factors in efforts to influence educational policy and reform. The Cold War maintained a vice grip on the conscience of Americans throughout the decades of the 50s, 60s, and 70s. Demographic changes within the country during the 1980s brought new challenges to public schools. During the Reagan presidency the conservative movement was institutionalized and, therefore, the publication of A Nation at Risk heralded a transformation in educational focus and ushered in the move toward educational reform in the form of national standards.

When the Soviet Union successfully launched the first satellite Sputnik, in October, 1957, at the height of the Cold War proponents of educational reform seized on the opportunity to cite the deficiencies in public school curricula as a reason for the Soviet Union’s apparent superiority in the field of science. Navy Admiral Hyman Rickover published American Education: A National Failure in 1963, calling for a national standards committee and educational testing. Rickover’s concerns about public schools echoed previous critiques which, for the most part, decried John Dewey’s approach to teaching and progressive education (Graham, 2005).

Critiques of public education have a long tradition in the United States. Berliner and Biddle (1995) point out that for more than a century negative commentaries about public education have appeared in popular magazines as well as academic journals. In 1900, for example, an article in Gunton’s Magazine stated, “The mental nourishment we spoon-feed our children is not only minced but peptonized so that their brains digest without effort and without benefit and the result is the anemic intelligence of the average American schoolchild” (p. 145). By mid-century the tone of the critiques became dire and the link was made between national security and educational standards. In 1951, both Readers Digest and Scientific Monthly published articles stating, “We are offering them a slingshot education in a hydrogen-bomb age” (p. 146). Educational reform advocates, Arthur Bestor, Albert Lynd, and Admiral Rickover...
published books in the 1950s, using alarming rhetoric to illustrate the need for national educational standards. According to Rickover:

> Everyone is aware today that our educational system has been allowed to deteriorate. It has been going downhill for some years without anything really constructive having been done to arrest the decline, still less to reverse its course. We thus have a chronic crisis; an unresolved problem as grave as any that faces our country today. Unless the problem is dealt with promptly and effectively the machinery that sustains our level of material prosperity and political power will begin to slow down.

(Berliner & Biddle, 1995, p. 146)

By the 1980s criticism of public education was routine, as was the tendency to blame educational problems on the progressive movement that originated with John Dewey. However, the 1980s represented a shift in the anti-education discourse in that the federal government now took the lead in disparaging public schools. Berliner & Biddle (1995) note three reasons for this shift:

> First ... for the first time ever Americans had elected a government composed of individuals who subscribed to reactionary ideologies that condemned public schools, and when they scapegoated education, that government was just expressing publicly the hostile notions that right-wing ideologues had been telling one another in recent years.

> Second, the administrations of Ronald Reagan and George Bush came under strong pressure from Human Capitalists in industry who wanted extensive and expensive modifications in American education.

> Third, the Reagan and Bush administrations were faced with escalating domestic social problems that neither government wanted to tackle. (pp. 147–148)

Reagan vowed, during his presidential campaign, to eliminate the U.S. Department of Education (which was established by President Jimmy Carter and, to him, represented big government). However, in order to make that happen he had to appoint a secretary of education who would be charged with the task of closing the bureaucracy. Terrell Bell was persuaded by Reagan to accept the position as commissioner of the soon to be defunct Department of Education. Bell decided that his final act as head of the department would be a national commission reporting on the state of education in America and he assembled the Commission on Excellence in Education to accomplish this goal (Graham, 2005). The resulting report, *A Nation at Risk* (1983) galvanized public calls for massive reform and spawned an entire industry of educational critics and reformers. As with the critiques of 1950s, the 1983 report linked public education with national security:

> If an unfriendly power had attempted to impose on America the mediocre educational performance that exists today, we might have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament.

Missing from critiques of public schools by conservative proponents of reform are discussions of the drastic demographic changes within the country and the changing expectations of public schools. Reminiscent of the conservatives’ tendency to idealize schools from previous eras, Diane Ravitch points to the schools of the past as models of excellence in teaching American heritage and traditional values. However, Redovich (2005) asserts that expectations for education were very different earlier in the 20th century:

> It was not until the 1950’s that a majority of American workers had an eighth grade education. It was not until the 1960’s that the majority of workers had a high school diploma. ... It was most common in the 1930s and 40s for students to drop out of school and go to work if possible at ages as young as 14. ... During the so-called Golden Age of public Education in the 1930s, most students did not complete the 8th grade and many minority children, particularly in the South attended school sparingly in segregated conditions. The 1930s, 40s and 50s were horrible for minorities and the poor in respect to educational opportunities. (p. 52)
On January 15, 2001, President Clinton delivered a message to the 107th Congress of the United States on the “State of Race Relations in America,” in which he addressed the changing demographics of the United States and noted the challenges facing public schools.

Today, almost ten percent of the people in the United States were born in another country and one in five school children are from immigrant families. There is not a majority race in Hawaii or Houston or New York City. In nine of our ten largest public school systems, over 75 percent of the students are minorities. In a little more than 50 years there will be no majority race in America.

(Clinton, 2001, p. 2)

It is projected that by 2020 Hispanics will become the nation’s largest minority group. In 1989, 87 percent of Hispanics lived in metropolitan areas, where 71.5 percent of their children attended intensely segregated schools, with more than 90 percent minority enrollment (Wells, 1989). Public schools are no longer biracial; they are multiracial, multicultural, and multilingual. Research has demonstrated a strong link between poverty and low academic achievement and schools struggle to find solutions for ameliorating problems associated with poverty, such as absenteeism and transciency (Byslma, 2004; Duncan & Brooks-Gunn, 2006; Pellino, 2006; Zackson, 2005). In light of the incredible complexities facing schools today, proposed educational reform, would seemingly need to be equally complex and multifaceted.

In spite of rapidly evolving school populations and the complex nature of the problems faced by many schools, most recent educational reform efforts have reflected conservative calls for “back to basics” curricula and standards based education (Allen, 1989). The Heritage Foundation, a conservative think tank, has become a formidable proponent of the standards movement and vouchers. They have produced numerous policy statements on education and are widely quoted as educational researchers and experts. The Heritage Foundation’s website is cited as a resource on the U.S. Department of Education’s No Child Left Behind website. According to Haas (2005), however, the Heritage Foundation’s staff members responsible for writing commentary about educational policy are not education experts at all. Five of the seven have no degrees in education or worked within a school.

The Heritage Foundation has served as an exemplar for other conservative think tanks. Haas (2005) describes the marketing technique that typifies the conservative think tanks that have become a powerful force in recent years:

... package provocative claims and incomplete information as easy-to-use research reports and through readily-available, media savvy experts so that this information can be used by the media, politicians and policymakers to lend an air of credibility to conservative policies and programs that are not supported by more rigorous scientific research and more qualified experts. (p. 137)

The common themes that resonate throughout the Heritage Foundation’s writings include descriptions of public schools as horrible places and failures and the need for a basic-to-basics curriculum, national standards, and school vouchers as the only solution.

Corporate Co-option

A primary tenet of the conservative movement is a free market approach to everything from health care and automobile manufacturing to banking and education. As far back as 1954 conservative economists were urging an adoption of a free market approach in education so that public schools, through competition with “free enterprise schools” can “prove their own worth” (Chodorov, F., in Brady, 1954). Current educational reform has been framed within the same economic policy and ideology that governs the management of factories and retail businesses.
The Business Roundtable was formed in 1972 during the Nixon administration with the goal of influencing public policy on a number of issues. In 1989 the Business Roundtable issued its Education Agenda and entered the arena of educational reform (Emery & Ohanian, 2004) and the market driven economic philosophy became, and has remained, the predominant force behind educational policy decisions. At the top of their list of the essential components of a successful education system are standards, assessments, and accountability (Business Roundtable, 2000). The Business Roundtable supported the passage of No Child Left Behind legislation and has been “actively involved in its implementation” (Business Roundtable, no date). Asserting that “research now shows that business leadership is critical to promoting and sustaining education reform efforts,” the Business Roundtable uses its influence with approximately 160 member companies to promote policy issues that support an agenda of educational reform in the form of high-stakes accountability based on standards and rigorous testing. A “50-state initiative” was implemented in 1990 and currently almost every state has a business coalition with a mission to promote alignment with the Business Roundtable’s educational agenda (Emery & Ohanian, 2004).

By the time George W. Bush was elected president in 2000 business leaders were firmly entrenched in the arena of educational reform and policy. After being debated for 50 years, and with contested research findings of efficacy, the issue of school vouchers once again came to the forefront of educational reform. During his 2000 campaign for presidency Bush promoted the idea of providing students with $1,500 in annual vouchers for parents to enroll their children in private schools (McCaleb, 2001). Although efforts to include a voucher component in the NCLB legislation failed due to Democratic opposition, conservatives were successful in requiring that some Title One funds would be available to pay for out-of-school tutoring and supplemental services for children attending schools that fail to make adequate yearly progress (AYP). According to Horn (2006), conservatives were optimistic that vouchers would be easier to sell in the 2007 reauthorization of NCLB based on the precedent for private tutoring and anticipation of failing rates on state assessments.

While corporate influence had been steadily growing since the Business Roundtable issued its Education Agenda in 1989, George W. Bush’s presidency ushered in a bull market for corporations and venture capitalists. Rather than simply serving the role as promoters of standards-based educational reform, since 2000 corporations have exploited NCLB legislation and Reading First (the component of NCLB that governs reading instruction) to make enormous profits. According to Poyner & Wolfe (2005), “there is ample evidence that the full force of the federal government is being used to support corporate agendas” (p. 9).

Current chairman of the Business Roundtable, Harold McGraw, III, exemplifies the infiltration of federal education policy by corporate influence. Harold McGraw, III, long-time family friend of President Bush, and current chairman of the Business Roundtable, is the Chairman, President, and CEO of The McGraw-Hill Companies, which is a major publisher of testing materials, as well as Open Court and SRA Reading Mastery reading programs. McGraw sat on the board of Barbara Bush’s literacy foundation in the 1990s and was honored by President H.E.W. Bush with a literacy award. He later served as a member of George W. Bush’s presidential transition advisory team, along with McGraw-Hill board member, Business Roundtable member, and CEO of State Farm, Edward Rust, Jr. (Altwerger, 2005).

The sphere of influence of business has grown exponentially since 2000. Roderick Paige, superintendent of Houston Public Schools and recipient of the Harold W. McGraw, Jr., Prize in Education was appointed Secretary of the Department of Education by President George W. Bush (Altwerger, 2005; Emery & Ohanian, 2004). Reid Lyon, former head of the National Institute of Child Health and Development and architect of the National Reading Panel report was appointed to the president’s education advisory team as the administration’s “Reading Czar.” The National Reading Panel’s report formed the foundation of Reading First, the reading component of NCLB.
Since its implementation Reading First has been plagued by charges of cronyism and corruption. In 2007 the Justice Department began a probe of Reading First practices and uncovered the deleterious effects of collusion between private business and federal government. Christopher J. Doherty, former director of Reading First was questioned for improperly pressuring schools to use Direct Instruction, a program that employed his wife as a paid consultant for ten years. Roland H. Good III, developer of Dynamic Indicators of Basic Early Literacy (DIBELS), a product endorsed by a Reading First evaluation panel he sat on, acknowledged that his company, Dynamic Measurement Group, made profits of $1.3 million. Edward J. Kame’enui and Deborah C. Simmons, former University of Oregon researchers who served on the same Reading First evaluation panel, reported that they received about $150,000 in royalties in 2006 for a companion program to DIBELS. Sharon Vaughn, director of a University of Texas center hired by states to provide advice on selecting Reading First assessments and books was cited for conflict of interest when a program she designed with Kame’enui, Simmons, and Good, Voyager Universal Literacy, was on a short list of programs recommended to states (Paley, 2007). Department of Education Inspector General, John P. Higgins testified before the Full House Education and Labor Committee Hearing that four Reading First Technical Assistance Center directors, Kame’enui, Vaughn, Joseph Torgesen, and Douglas Carnine “had substantial financial ties with various education publishers during the time they were under contract or subcontract with the Department for the Reading First program” (Horn, 2007, p. 1). Emails, submitted as exhibits during the Justice Department investigation reveal multiple levels of conflicts of interest and the acknowledgement by Reading First officials of their tenuous positions as government officials and program developers and evaluators.

Other emails provide insight into the lengths that Reading First officials went in order to maintain ties with publishing companies and program developers. Vaughn, in a December, 2002, email suggests dismantling the Voyager “design team” (at least in name) and “reconfiguring it as an ‘Advisory Board’” so that they would have “more flexibility to continue to work with Voyager without it causing potential problems with Pearson and Scott Foresman” (Horn, 2007, p. 72). In spite of their evident awareness of conflicts of interest Vaughn, Kame’enui, Good, and Torgesen, it was apparent through their communications that they were actively involved in assisting the program developers and publishers they had working relationships with (and received financial benefit from) obtain and maintain lucrative contracts with states.

While Reading First officials were scrutinized for their involvement with private entities, corporations operated with seeming impunity and reaped huge profits. Randy Best, originator of Voyager, and campaign contributor to George W. Bush’s presidential campaign, after losing money for 8 years on the reading program prior to the Bush presidency, experienced a reversal of fortune since Reading First’s implementation. Not content to merely reap profits from Reading First connections, “Voyager employed lobbyists and made political contacts to obtain at least 14 earmarks over five years, worth more than $8 million, according to a review of congressional records” (Grimaldi, 2007). In spite of Voyager’s claims of effectiveness, the Department of Education’s review gives it only mixed reviews, stating that it provides potentially positive results for learning phonics and letter recognition but potentially negative effects in reading comprehension. In 2008 the Citizens for Responsibility and Ethics in Washington (CREW) filed a complaint with the Department of Justice, the U.S. Attorney for the Eastern District of Louisiana and the U.S. Attorney for the Northern District of Texas requesting an investigation of Senator Mary Landrieu for violation of federal bribery laws by including a $2 million earmark for Voyager Learning in a bill four days after receiving a $30,000 campaign contribution from company executives and associates. CREW is also requesting an investigation by the Senate Ethics Committee (Citizens for Responsibility and Ethics in Washington, 2008).

Randy Best, however, is no longer involved with Voyager. Amidst growing concerns about corporate corruption and cronyism, he sold the company for over $350 million in 2005 (Grimaldi, 2007). He used the profits he made from the sale of Voyager to launch his latest education initiative, Higher Ed Holdings, a company that develops colleges of education. Best is a critic of existing colleges of education,
believing that professors have too much freedom to teach whatever they please and ignore research on what skills make for effective teaching (Ashburn, 2006). Randy Best recruited Secretary of the Department of Education, Rod Paige who left his work in the public sector to join the private sector, joining Higher Ed Holdings as a senior advisor in 2005 (Benton, 2006).

Reid Lyon, Bush’s “Reading Czar” and architect of Reading First also exited the public sector prior to congressional investigations. After resigning his position in 2005 Lyon joined Randy Best’s quest to profit by developing private colleges of education (Benton, 2006; Salvato, 2005). Like Best, Lyon is a critic of colleges of education, telling a group at a public gathering in Washington in 2002, “You know, if there was any piece of legislation that I could pass, it would be to blow up colleges of education. Those are some of the most resistant, recalcitrant places you will ever get to” (p. 1). Through his affiliation with Higher Ed Holdings, Lyon hopes to bring the same level of reform to teacher education programs as he did to reading instruction programs through Reading First. The recently published Reading First Impact Study commissioned by the Department of Education, however, has found that the $1 billion-a-year program has had no measurable effect on students’ reading comprehension (Institute of Education Sciences, 2008).

In the years following the signing of the NCLB legislation the role of private corporations has shifted from policy promoters to policy creators. The Education Agenda established by the Business Roundtable remains at the forefront of policy discussions with its primary tenets of standards-based education, rigorous testing, high-stakes accountability, and promotion of private school vouchers. The profits generated from Reading First policies have whetted the appetite of profiteers who have now shifted their gaze from public schools to colleges of education and teacher preparation programs. Of his new role with Higher Ed Holdings, Reid Lyon stated, “My new position will provide me the opportunity to put my best efforts to change the landscape of higher education as we know it today” (Best Associates, 2005).

Conclusion

The standards movement resonates with echoes of previous efforts to reform education. Although current educational reform discourse often revolves around discussions about closing the achievement gap and embracing diversity, it’s unclear whether the efforts reflected by NCLB legislation and Reading First mandates will result in schools that are less segregated or education that is more equitable. Educational policy that is aligned with market driven ideology is by design unconcerned with issues of race, ethnicity, fairness, equity, or quality; the market, not the government, determines the nature of schools. Parental choice is the determining factor in whether schools thrive or fail within market-driven systems. If parents choose to patronize a school based on the sole factor that it is segregated, then so be it. If parents choose to send their children to a school for no other reason than that it is in their neighborhood, then so be it. Test scores, in market-driven school systems, serve as advertisements for school quality, in much the same way that market goods advertise their quality based on consumer reports. Savvy parents are free to make informed decisions about the schools they choose to send their children to based on reports derived from test score data. It sounds logical to an extent.

The logic falls apart, however, when the federal government acts as a shill for corporations interested primarily in profiting from educational policy. While it is true that parents can decide, within a market-driven system, to send their children to the schools of their choice, the high stakes nature of the standards movement makes their decisions moot in certain cases. For example, if parents in an urban area decide that their only feasible choice is the poor performing, under-funded school in their immediate vicinity, they are faced with the reality that the school of their choice will likely deteriorate further and eventually be closed. High stakes accountability systems and NCLB legislation mandate that schools that fail to meet AYP expectations are subject to withholding of federal funding and sanctions. In spite of the link between poverty and lower academic achievement, as demonstrated by research, proponents of the standards movement insist on holding schools accountable for problems that originate years prior to entry.
into school and are unsolvable by school administrators or teachers. In keeping with standards movement rhetoric, the problem is not the factors that contribute to low academic achievement, the problem is that not enough is expected of children in public schools (Bennett, et al, 1998).

The standards movement, as commandeered and promoted by the Business Roundtable and corporate interests, represents the predatory nature of market-driven ideology that values profit above all else. Milton Friedman expressed personal disdain for segregationists (1955). However, he was unbothered by their adoption of his ideas or the use of his words to promote racist policies. According to Friedman,

*The appropriate activity for those who oppose segregation and racial prejudice is to try to persuade others to their view; if and as they succeed, the mixed schools will grow at the expense of the nonmixed, and a gradual transition will take place.*

Friedman, 1955, p. 17

In other words, desegregation is best accomplished through marketing and advertising and not through judicial rulings or government intervention. If segregationists do a better job promoting their ideology (as they did in certain regions of the United States), then they deserve to thrive, according to Friedman’s logic, at the expense of desegregated schools. At the heart of the problem, according to Friedman, whose foundation, the Milton and Rose D. Friedman Foundation (http://www.friedmanfoundation.org), has been actively promoting school choice and vouchers since 1996, is governmental bureaucracy and control over education (Friedman & Friedman, 1980).

On the other hand, proponents of the standards movement, in its current variation, are apparently delighted with the strong-arm approach adopted by the federal government lead by conservative ideologues. Corporations have profited greatly from current NCLB policies and Reading First mandates and are exploiting the bear market to expand their reach into other educational realms, like teacher colleges. The values espoused by free-market proponents are highly flexible and, at times, negligible. The market is providence. According to Horn (2006), “‘Standards’ have become code for impossible and racist AYP requirements, which offer the straight and open canal to the corporatizing of American schools – beginning in the urban centers.”

**Resources**


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1 Purpose

Our purpose is to evaluate a field study trip to Kenya. The participants in the field trip were undergraduate teacher training students in Geography at the University of Gothenburg. Our interest here is to evaluate the learning outcome of this field study. The students experienced an authentic learning situation and in this paper we highlight the effects of that situation.

2 Introduction

How to internationalise higher education is a frequently discussed topic on the educational arena in Sweden. There is no doubt that we are influenced by globalisation: increased trade as well as personal communication, mutual dependency, international migration, environmental threats, scarcity of resources and so on. But how can we work with internationalisation in compulsory schools and in higher education? What is internationalisation and to whom?

According to UNESCO, internationalisation of higher education may be defined as “the process of integrating an international, intercultural and/or global dimension into the goals, functions (teaching/learning, research, services) and delivery of higher education.” (UNESCO 2008)

Alongside formulations like the UNESCO one, there are also formulations that expose competitive reasons for internationalisation of higher education. The University of Gothenburg has produced a strategic plan in order to raise quality levels at the university during the period 2007–2010 and it is clear that the ambition is to strengthen the university’s competitiveness. One objective is to “[i]mprove and develop our dialogue and exchange with the surrounding world”. And, moreover, to “[s]trengthen and coordinate our contacts with the surrounding world and increase openness to the needs of the community and make use of ideas from the world around us”. (Göteborg University, 2007, p. 14). The international vision, as it were, is thus combined with explicit strategic ends.

On a lower educational level, the curriculum for the Swedish school system states that: “It is important to have an international perspective, to be able to see one’s own reality in a global context in order to create international solidarity and prepare pupils for a society that will have closer cross-cultural and cross-border contacts. Having an international perspective also means developing an understanding of cultural diversity within the country”. (Swedish National Agency for Education, 1994, p. 6).

So, what we seem to have here are three different kinds of objectives:

1. formal objectives (stated in documents like the curriculum or the strategic plan),
2. real objectives (questions related to our common future and sustainable development), and
3. ethical objectives.

The latter group of objectives deals with didactical questions like:

- What selections regarding content/stuff are made? (The didactical what-question.)
- What are the legitimizing grounds for these selections? (The didactical why-question.)
- How do teachers work with what is selected? (The didactical how-question.)
Highly related to these ethical objectives is the question of what may be called the Western bias in textbooks.

3 Swedish textbooks

Traditionally, the teachers and researchers at the social science education department (at the unit for subject matter in Gothenburg) have been more interested in the didactical why-question—’i.e. how to legitimize what has been chosen as content/stuff’—than in the more methodological question—’i.e. the question of how to work with what is chosen’. This has led to text-book analyses as well as field studies, and, as a consequence, an ongoing emancipatory interest in the didactical field.

There are certain problems associated with Swedish text-books. They have, for example, an obsolete way of presenting people from other countries. In several text-books there are quite a number of chapters about international issues. These chapters are mainly concerned with international politics, conflicts and trade. But Africa, for instance, is only briefly presented in most of the text-books.

The bestseller when it comes to text-books in Civics for Upper Secondary School is called Zigma. It presents Africa, or, more specifically, the case of Uganda, in one (sic) page and that page is symptomatically the very last page of the whole book. This page is called “Why is Uganda poor?” and raises a few questions, however without answers, about poverty. There is also a picture (covering almost half of the page’s area) of a child soldier from Uganda (Bengtsson, 1998, p. 633). In other text-books we can read headlines like “Europeans discover the rest of the world” or “Africa—a continent with problems.”

These headlines set the picture and the students are then confronted with issues like corruption, war, lack of water, bad harvest, poor education etc. Consequently, only a few of the pictures in these books let you understand that there are developed and industrialized parts of Africa. Thus, Africa is presented, not only as just one country, but also a country with a lot of problems and deep misery. Of course, the text-books also bring up Western ideas as future solutions to these problems (Hansson, 2006). There is a definitive risk that these text-books, as well as school activities influenced by them, very easily consolidate what they, the text-books and, perhaps, the students, take for granted in the first place. Instead, the texts and the activities should challenge prejudices by giving a more complex, perhaps objective, introduction to issues like daily livelihood, human relations with nature, and other cultures (Möller 2003). Prejudices ought to be challenged, not strengthened.

4 Social science educational aspects

So what are we trying to do as teacher educators? Arguably, we should deal with issues concerning the good society in a collective sense (or “the flourishing of humanity”). In that vein, Karlegärd claims that the social science educator should ask herself/himself what social science may contribute with when it comes to the fulfilling of basic human needs and the solving of social problems. He also asks “What does society want?” He stresses the collective interest and argues against “individualistic” didactics. Thereby he seems to mean, that the teaching subjects should not be chosen, at least not in the long run, for the sole benefit of the individual (Karlegärd 1986).

This in a sense pragmatic stance is further elaborated upon by other social science teachers and researchers. For instance Almius (2006) claims that an emancipatory effect may be reached through field studies since learning outside of the classroom have an authentical—’learning based on first hand experience that is—’potential. This is also stressed by Andersson (2006) as well as by Hansson (2006). The smallest common denominator here is “learning by doing” (an expression inherited from Dewey, see below) and all three authors stress that new perspectives are needed. From a somewhat different angle, Södring-Jensen claims that the utopia of the child—’as opposed to earlier experience and knowledge—’ought to be the starting point for all learning activities (Södring-Jensen 1978).
So, to us it is quite clear that these teachers and researchers share a normative argument: We ought to have a questioning attitude towards the present state of social affairs and, moreover, the production of knowledge must be for the benefit of the emancipation of human beings and for sustainable development in a broad sense.

5 Pedagogical aspects

Dewey stated that learning involves a continuous construction of reality wherein the creative side of the process stems from an encounter between a hitherto inexperienced pupil and an unstructured environment. It would then be quite the opposite of a learning process that typically takes place in the classroom, with its highly structured environment. And, moreover, due to the fact that her/his own observations, her/his knowledge and her/his experience are not significant there, the classroom context reduces the student to an object. What we may call reality itself is quite another challenge for the pupil and Dewey was in favour of learning by doing: The teacher should give the student something to do, not just something to learn (Dewey, 1915). “Recognition of the natural course of development, on the contrary, always sets out with situations which involve learning by doing.” (Dewey, 1915, p. 275). This probably is easier accomplished in an inter-disciplinary study.

One’s experience is, furthermore, situated in time and place as well as in language and through artefacts (Lave & Wenger, 1991, Säljö, 2000). It is a “here-and-now” experience and learning is therefore constructed in a social context. In this perspective, a holistic one, the learning process thus includes a social act and cannot be successful if the learner is not participating in that act. “Communication is a process of sharing experience till it becomes a common possession.” (Dewey, 1915, p. 17). Vygotsky too stresses the importance of communication: “… individual consciousness is built from outside through relations with others.” (Vygotsky, 1996, p. xxiv). Hence, it is important that the learners discuss ideas as well as values with classmates.

In summary, these pedagogical aspects form an argument for learning by doing, in our case in the form of a field trip. But what can an international trip like this do that not can be done in the classroom and with text-books?

6 The field study

Authenticity is fundamental for a field study. As stated earlier, authenticity should be understood (here) as learning based on meetings with an, in a broad sense, unknown environment. An outdoor programme involves all senses—’not only eyesight and hearing’—’and a lot of emotions. We believe that when you are emotionally touched (both positively and negatively) it is possible to gain knowledge and understand things on a deeper level. This will most likely occur when you meet the unknown in a real-life situation. A field study is a first hand experience, no one has translated, as it were, your observations and so reality is not simulated in any way. Far from being a matter of nothing but facts, the process is about discovery, understanding and about to be in the authentic environment. Creativity is thus stimulated and developments made are not just cognitive but also emotional. This, we believe, improves the learners self-reliance and self-confidence.

The purpose of this field study was to learn about life conditions, daily livelihood and human relations with physical environment in Kenya. This was a purpose closely connected to central Geography concepts (in Sweden, Geography is made up of both Physical Geography and Human Geography).

14 students and 2 teachers (P-O was one of them) participated in the field educational programme. The students studied their second term (i.e. they were half way through the programme) of Geography at Teacher Training School (University of Gothenburg). The field study in Kenya lasted for 17 days. The programme included studies in Nairobi, and especially the Kibera slum, a round trip in Kenya that
covered Naivasha, Nakuru, Nyahururu and across Laikipia plateau to Mt Kenya. The last few days was spent on the islands of Lamu and Kiwayu.

The programme also included a meeting with UN representatives, an excursion in the bush for 7 days and all kinds of physical geography, 5 days of climbing Mt Kenya and its beautiful surroundings, the UN-heritage Lamu and the coastal process as well as visits to schools, children’s home, mosque etc.

7 Findings

The evaluation—‘a kind of think-tank—’was made four months after the field trip. he students, 11 out of 14 attended, were divided into two groups (one group at the time) and initially the students got post-it notes on which they independently wrote down associations related to the field trip. The post-it notes worked as mind-openers and thus helped the students to start reasoning with themselves (this could also be called a sort of brain-storming). Each student put all his/her post-it notes on the table and arranged them in a pattern, or structure, which they then explained to the other students in the group. After that, they all started to discuss words and concepts that were written down and P-O’s role was to listen, to take notes and to ask questions like “can you explain…, give an example…or is there something you’d like to add…”. So the evaluation came about as a learning opportunity with metacognitive qualities, the students partly doing some self-questioning. After the session, P-O wrote a summary and he also collected the post-it notes.

It is obvious from the evaluation that Kenya made a huge impact on the students. One of them says: “I got deeply touched and affected by Africa.” Another one claims: “I couldn’t imagine that it was that terrible in Kibera.” The teacher training students were thus emotionally affected and they also expressed feelings of bad conscience: ”Along the road side we saw people who sold trash for a living” and ”we went home—they are still there. For their entire life”. Clearly, what made the most impact on these students was meeting other people, local people, and experiencing another very different culture. In so much as they are Geography students, they of course acknowledged the Physical Geography parts of the trip—’for instance Rift Valley—’but these meetings, as it were, albeit authentical, were not as dramatic as their meetings with the locals. This is especially true regarding the hiv-infected women from Kibera. Due to our contacts, the students came very near the local people in the slum. One student says: “They showed us an inner motivation that we are not used to.” Another student tells us about her reflections at home: “I’m talking to other people about Kibera all the time” and “I’d like to do something”.

In the field study the learner is present with her/his entire body, both intellectually and emotionally. It is not a matter of just talking; it is also a matter of being in an environment that demands from you a certain development of your abilities and your self-reliance. An authentic environment can be chaotic when something unexpected happens, but it can also be very fruitful for the learning process. The student has to ask her/his own authentic questions and solve real problems in a world that for sure has stepped out of the text-books.

These first hand experiences will be valuable for the students in their forthcoming role as teachers and they also provide a sort of balanced understanding: nothing is ever black or white. The field study worked as a mind-opener to these students and gave them unique personal experience as well as insights regarding their own lives. They had to handle a lot of new impressions and situations. One student says that “now it is important that I proceed with my education”: a realization that an educated individual can make a difference. Yet another student expresses: "I’m thinking daily of Africa”.

In short we may discern four major themes, or headlines, based on this evaluation:
• **Perspective—‘towards your self’**: your own values and your personal development. Self-reliance and self-awareness. Self-questioning that gets deeper due to emotional involvement and first hand experience.

• **Perspective—‘towards others’** and their life conditions. Openness towards others and towards the unknown. Increased empathy and understanding for those who suffer and a more balanced view of injustice. Personal strains and achievements create different insights. There were several mind-openers that showed togetherness, but there were also barriers to others.

• **Perspective—‘towards your own skills’**: pedagogical skills, skills regarding the subject (the stuff), and skills regarding sustainable development (in a broad sense).

• **Perspective—‘towards empowerment’**: Students taking action. A clear notion that one individual can make a difference and that one individual, together with others, can change situations.

8 **Conclusion**

The international field study trip had a great impact on every student. Authentic learning and first hand experiences affect people deeply. The learner gets touched by the people he/she meets and this leads to a kind of deep understanding that only rarely is possible to accomplish in the classroom. These students will, most likely, take action with Africa in their hearts. We sincerely hope that they, as future teachers, can relate to a global context in their teaching in order to improve international understanding. If so, these students can be a change in the world and thus, hopefully, improve global justice and they will thereby contribute to “society’s practical rationality in elucidating where we are, where we want to go, and what is desirable according to diverse sets of values and interests” (Flyvbjerg 2001, p. 167). According to Flyvbjerg, that is exactly what makes social science matter.

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Educational Activities of Cultural Extension in the Integration of Erasmus Students

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1 Introduction

The Portuguese Educative System Basis Law (Law n.º 46/86 of 14/10, reviewed and updated by Law n.º 49/2005 of 30/08) defines it, in the 1st and 2nd articles, as a “set of means with which it is materialized the right for education, expressed on the guarantee of a permanent formative action, guided in favour of global development of personality, social progress and society democratization”. This “answers to the resultant necessities of social reality, contributing, thus, for the complete and harmonious development of individual personality, stimulating the creation of free, responsible, autonomous and sympathetic citizens that value the human dimension of work”.

Education, in turn, “promotes the development of democratic and pluralist spirit, one that respects the others and their ideas, open to dialog and free exchange of information, becoming themselves citizens capable of judging, with a critical and creative spirit, the social environment that surrounds them and of pledging in its gradual transformation”. In a similar way, it contributes for “individuals’ personal and communitarian accomplishment, not only because the instruction for a system of socially useful occupations, but also for the practice and learning how to use creatively their free times”.

The Portuguese Educative System comprises pre-school, school and extra-school education. Inside school education there is the higher education that aims at “continuing the cultural and professional instruction of citizens by promoting proper forms of cultural extension”. Portuguese higher education can be at the level of university or polytechnic. University education aims at assuring solid scientific and cultural background, providing a technique formation that qualifies for the exercise of professional and cultural activities and instigating the development of capacities for conception, innovation and critical analysis. Polytechnic education, in turn, aims at providing a solid cultural and technique formation of higher level, at developing the capacity for innovation and critical analysis and giving a scientific knowledge, practical and theoretical, and its applications to the exercise of professional activities. Would the reality so far described refer only to national students? What about Erasmus students?

Obviously, and knowing that one of the purposes of that programme is “promote opportunity equality to all education domains”, it is possible to state that all Erasmus students in a foreign university should be integrated in the educative and cultural models that exists there.

Having this been stated, Erasmus students in mobility in Portuguese Polytechnic Institute schools should obtain a cultural and technique instruction of higher level and equally should participate in cultural and education extension initiatives promoted by those schools.

With this article, it is intended to inquire at what level such reality is true and to see which positive impacts on students and future professionals, which are in Erasmus mobility in the School of Education of the Polytechnic Institute of Porto exists.

In this way, this paper will initiate by proceeding a bibliographical revision of the Portuguese Educative System while forecaster of cultural extension activities, as well as a study of the type of such activities
existing in the Portuguese Higher Education (university and polytechnic), referring here the activities held by the different courses of the School of Education.

Next, it will be made a brief explanation of the cultural extension activity in which participate the Erasmus In students of the 1st semester of 2006/2007 and the reasons and consequences of their integration.

2 The School of Education while a higher education institution that engenders cultural extension activities

The start point of this chapter analysis consists on the definition of the “cultural extension” concept. Some authors (Marchetti, 1980; Ribeiro, 1984; Cristóvão, A. et Loureiro A., 2000) show how difficult it is to make it.

So, it is natural that university extension programmes relate and enclose multiple activities as educative actions for adults, actions related with agricultural activity, regional and rural development actions, among others.

The university extension relates, in such way, to a variety of connection points between university and different sectors of society, generally made through non-formal education (adults education, continuous formation, professional formation that can be made through seminars, congresses and courses), inter-institutional relationship (the technological transference from the university to companies, schools, cultural institutions or between universities), university service (namely as periods of training and stays) and direct service instalment to the community (share of human and technique resources, facilities, cultural intervention, participation in programmes of communitarian development, applied research to public problems), with the purpose of contributing for individual’s development and the environment where it is applied. These different forms of performing the extension are complementary, which means that one action or one extension programme can be enclosed, simultaneously, in more than one of the presented types.

How is being developed the integration process of the extension concept in the university?

The first reference of this dates from the 1st Republic, in the University Constitution of 1911, in which it was defended, as one university purpose, to carry out the “methodical study of national problems and to spread out high culture in the nation through university extension methods”. However, such reality would only last up to 1918, year when universities closed for themselves. Not even with the 25th of April and respective ending of the dictatorial period, this reality would modify. Such would only happen in the end of the 90s with the appearance of the Communitarian Programme PEDIP1 (Specific Programme for Development of Portuguese Industry).

Contributing to these facts, it was also the Educative System Basis Law of 1986 and the University’s Autonomy Law of 1988, which emphasizes the services’ instalment to the community, “in a perspective of reciprocal valuation”

Although this situation, some factors seem to persist preventing the practical application of these legal rules, namely:

- The aversion to change by some teachers who continue to prefer that their functions remain only connected to the learning process and to research;
- The extension actions don’t correspond always to the community real necessities;

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1 PEDIP stands for Programa Específico para o Desenvolvimento da Indústria Portuguesa in Portuguese.
• The lack of inter-institutional networks between institutions involved in the extension process;
• The frequently use of the argument of a financial weak contribution by the State to support the accomplishment of such activities, without, however, pointing or reflect about other possible financing means;
• The hierarchic ascension of the teachers’ career depending only on teaching hours, research and published works, not being therefore considered the cultural extension activities.

In the School of Education of Porto, the cultural extension activities produced in 2006 were:

2.1 *The Digital Inclusion Support Nucleus – NAID*  

The Digital Inclusion Support Nucleus was created in September 2005, with the cooperation of the Knowledge Society Operational Programme, as an organic structure oriented to use the information and communication technologies (ICT) in the instruction and development of citizens with special necessities.

In 2006, it has developed its activities in the support and instruction of citizens with deficiency, children with special educative necessities, older people and disadvantaged social groups, through structuralized actions using support techniques and technologies.

At short and long term, NAID intends to become a reference structure, specialized in rehabilitation technologies and special education, essentially guided for professional formation (support to New Opportunities Centres) and to support special education teachers and technicians integrated in several groups of regular education or in private social solidarity institutions.

2.2 *The Inclusive School Support Unit – UAEI*  

This unit has for purpose to implement a transdiciplinar evaluation and intervention model, which improves the development of children in familiar and social context.

In the scope of its activities it’s highlighted:

• The evaluation and intervention in educative contexts and research in inclusive backgrounds, precocious intervention, transdiciplinar evaluation and creation of intervention and support programmes to families;
• The direct and indirect support to schools: evaluation in school context and intervention and promotion of inclusive contexts;
• TPBA formation – accomplishment of two formation actions in July, with the contribution of the methodology adoptee mentor;
• The organization of the Precocious Intervention Formation Course, carried through in 25th of March;
• The pos-graduation studies and formation of professionals and parents;
• The participation in international projects: “Music for Deaf”, a Leonardo da Vinci project and the application to a preparatory visit of the “Training Parents or Students with Attention Deficiency and Hyperactivity Disorder” project, included in the Socrates and Leonardo programmes;
• Research, information gathering, translations and adaptation of information, meetings and contact with schools, parents and other institutions.

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2 NAID stands for Núcleo de Apoio a Inclusão Digital in Portuguese  
3 UAEI stands for Unidade de Apoio à Escola Inclusiva in Portuguese
2.3 The Research Centre in Music Psychology and Music Education—CIPEM

This centre has come to develop activities in the area of research, interventional and reflexive production, in music psychology and music education domains.

Throughout 2006, it’s highlighted:

• The FCT project “Construction of musical and professional identity on young Portuguese through philharmonic bands – a cultural perspective”, which has produced a 1st and a 2nd progress report;
• The participation in the Research International Seminar of ISME, in Bali, with the presentation of a communication;
• The continuity of the “Perception, by children, of the 20th century erudite music” project;
• The HYPERSCORE project in Schools, in cooperation with the House of Music – the project is taking place in the school EB2/3 of S. Mamede;
• The accomplishment of the 2006 Fall School, in the ends of September, with the participation of two Brazilian researchers and the contribution of elements of the team of the FCT project;
• The edition of the nº 6 of the magazine “Music, Psychology and Education”.

2.4 The Psychopedagogical Intervention Centre—CIP

CIP has been a partner in national and international research projects in the area of intervention in the educative context.

It was a partner in the European project “To educate in the diversity”, financed by the Socrates Programme. It carried through psychological consultations, therapeutical processes and several interventions in educative institutions. It promoted a Parents Formation Course called “School for Parents”. Moreover, it gave psychological support to parents and promoted multiple meetings with them. It also collaborated with Non-Governmental Organizations (ONG), the Commission for Children and Young Protection and the Communitarian Prometeus project, among others. In partnership with the Portuguese Society of Psychology, it has initiated the specialists’ formation in Clinical Psychodynamic Psychotherapy. It has also developed Clinical and Psychological Supervision for psychologists.

2.5 Knowledge Resources Centre—CRC

The Knowledge Resources Centre was created in 2003 and develops, since, activities oriented to students, teachers and education technicians, in the scope of the access to information and availability of technique-pedagogical resources and formation.

In 2006, through its documentation nucleus, it has made available more than a thousand educative resources for house loan and equipment and specific tools for access to information to all students and teachers of ESE-IPP.

The multimedia and contents nucleus continued the intensive work of promotion and development of the b-learning platform, that gives support to academic activities and, in partnership with the Digital Inclusion Support Nucleus, developed formation and demonstration initiatives for citizens with deficiency and children with special educative necessities.

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4 CIPEM stands for Centro de Investigação em Psicologia da Música e Educação Musical in Portuguese
5 CIP stands for Centro de Intervenção Psicopedagógica in Portuguese
6 CRC stands for Centro de Recursos em Conhecimento in Portuguese
2.6 The Literary and Artistic Studies Nucleus—NELA

The activity of this Nucleus, in an attitude of opening to the school, has contributed for a holistic and integrated vision of literature and other arts, having materialized the following actions:

- The partnership with other School Areas (Portuguese Studies, Arts and Crafts) and with teachers, individually involved, from others areas (TCAV, Education Sciences, Motricity);
- Studies and research activities in specific scientific and cultural domains, as Literature for Children, by means of its coordinator, with the Thematic Network of Literature for Children and Young of the Iberian Landmark (publication of two articles and accomplishment of a conference);
- Promotion of multiple cultural extension activities: students’ reception, Tell-Stories session with a Greek invited teller, commemorations of the Month of the Book and Freedom (April), Book Fair, Álvaro Magalhães conference, cycle of commented cinema, exhibitions, commemoration of the Scientific Culture National Day and homage to António Gedeão, in cooperation with the Cultural Office and Mathematic and Sciences 2nd year students;
- Publish of a small collection of illustrated postcards, including literary texts of the 25th April Revolution;
- Continuation—however not finished—of the development of the NELA webpage, making available resources and support to teachers and students;
- Contribution to the development of a belonging sense and intervention in the school of graduate students and students still graduating, stimulating their cooperation with the Nucleus. Three students (meanwhile hired as teachers) had been integrated in NELA and they had collaborated actively in the activities promoted by the Nucleus.

2.7 The Internet in 1st Cycle Schools Project—CBTIC@EB1

Of the purposes assumed by the project, consisting them on:

- Endow the school with capacity to produce, update and maintain web pages, with active participation of students;
- Promote the ICT curricular integration;
- Promote and certify the acquisition of basic abilities in information technologies by students, namely the ones that concluded the 1st cycle of basic education;
- Promote the formation of practice communities in schools, in partnership with others entities

It can be said that the project had evolved positively, above all, referring to the ICT curricular integration. In total, 15.045 diplomas of ICT basic abilities had been assigned.

2.8 The Mathematics Accompaniment and Continuous Formation for 1st Cycle of Basic Education Teachers Programme

The mathematical continuous formation for 1st cycle of Basic Education teachers had as purposes:

- To narrow the relationship between school and families in a mathematic education cooperation and formation perspective;
- To promote mathematical culture in the society.

This was a very interesting project that allowed the knowledge of other mathematic teaching forms. This formation had certified 994 learners of the 180 that had attended it.

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7 NELA stands for Núcleo de Estudos Literários e Artísticos in Portuguese
2.9 The Teaching Quality and School Abandonment and Failure Prevention in the 2nd and 3rd cycles of Basic Education Project

Together with ESE Setúbal and ESE Portalegre, our school initiated the project “Teaching Quality and School Abandonment and Failure Prevention in the 2nd and 3rd cycles of Basic Education – the role of Non Disciplinary Curricular Areas (NDCA)”. This project aims at identifying educative and pedagogical practices that can contribute for one better student educative framing and at the failure and indiscipline prevention in schools. The work will happen, particularly, on the Non Disciplinary Curricular Areas (NDCA, previously named as New Curricular Areas). It still searches to make proposals of innovation management and teachers’ continuous formation, aiming so to a higher involvement of the educative team in the improvement of school results. This project has the support of the Innovation and Curricular Development General-Direction.

2.10 The 10th National Meeting of UNESCO Associated Schools

In this meeting, it had been considered, to work and reflect on, two key subjects:

- Education to Sustainable Development;
- Network Dynamics (either at national or at international level).

2.11 The Cooperation with Timor

ESE-IPP integrates the Coordinator Commission of the Law course in the National University of Timor, through professor Elisa Sousa (Portuguese Studies teacher). This teacher is also the co-author of the Portuguese Language programme in this course. ESE-IPP was represented in two Commission missions: one had as purpose to assure the course beginning and the Portuguese Language subjects functioning; the other was held to make the selection of candidates to the initial year of the course.

ESE-IPP collaborated, through professor Elisa Sousa, with the Professional Formation Centre in Dili, having been later established a cooperation protocol that foresees the displacement of this teacher to East-Timor to give formation of the supervision area and Portuguese Language to the Professional Centre learners.

3 The International Relations Office (IRO) of ESE-IPP and its educative actions of cultural extension

The present direction of this office began its functions in October 2006. Of the strategical diagnosis made then, it was possible to verify the office’s real management conditions in 2006/2007 and the following years.

Effectively:

- It wasn’t foreseen a budget to the office and
- It wasn’t attributed any kind of secretariat level support. So, the office’s coordinator has to cumulatively do these tasks, with some support of two appointed teachers, who would assist it in a total of three hours per week each.

In this way, it is understood that, equally, this office didn’t provide any Portuguese language and culture courses. This was a responsibility of the institutional coordination, which offers a paid course, without credits.
The result was international students satisfied with the education and pedagogical methods of the lessons and with the Portugal way of living but unsatisfied due to the lack of integration in the school and in Porto local community. The students that attend these courses almost never finish it because the absence of the Portuguese culture.

By analysing this information, the IRO’s coordination decided to propose to the Music department to contact the Lapa Church and propose them a joint musical activity. In this activity, not only ESE-IPP students of the different levels of the “Choir” discipline would participate, but also the Erasmus In students integrated in the school.

The Lapa Church is known in Porto and all over Portugal as an excellent music producing place. Beyond its religious activities, it includes, equally, a cultural programming especially created in the culture democratization optics.

Similar to Europe, in 2006 it organized the “Mozart Year”, celebrating the 250 years of the birth of this composer. Coincidently, also in this year the referred Church celebrates its 250 years. For so, the musical programming was even richer related to the interpreted works quality and to its sponsors effort. It was foreseen the interpretation, throughout the year, of the 18 Mozart masses, as well as the “Mozart Requiem” in the day of this author’s death.

In Lapa exist seven choirs (among them the Children Choir, the Catechesis Choir, the Gregorian Choir and, the main one, the Lapa Polyphonic Choir). After conversations between ESE-IPP and Lapa, it was settle that the different levels of “Choir” discipline students would join Lapa Polyphonic Choir and three other choirs of Porto and, thus, interpret the “Mozart Requiem” in the 5th of December 2006, making a choral mass of 200 singers.

Both national and international students, enthusiastic with the idea, had pledged in the musical score study, having created themselves a good share environment between the students and equally between the remaining choirs. Of the music students group, there were four Erasmus students, three form Turkey and Muslims and one from Norway and atheist.

In regular concerts, Lapa Church usually receives between 600 and 1000 individuals. With this event, the public adherence would ascend to 2500 individuals. This day would become, therefore, a memorable mega-event for all participants: public, singers, musicians, teachers, sponsors and the host entity – Lapa Church.

To prove this success, we have the published periodical news, videos made during the concert and the feedback of the Erasmus students, either participating as singers either participating just like audience.

4 Conclusions

In order to verify this event success next to Erasmus students (remembering that this event was only organized due to the general unsatisfaction shown by them), it was made a survey after the concert accomplishment.

In this survey, it was asked for the students to classify in importance order:

1. The participation in the “Mozart Requiem” in an educational, cultural and social point of view;
2. The event accomplishment out of ESE-IPP and to a different public than the school public;
3. The lived ecumenical moment (since some students didn’t have a religion or followed another one different than the catholic);
4. The existence of similar activities in their home universities;
5. The creation of similar events for Erasmus students in mobility in their universities;
6. The interest to have the opportunity to sing the “Mozart Requiem”:
   a) With ESE-IPP music colleagues;
   b) With ESE-IPP teachers and the international relations coordinator;
   c) With orchestra, maestro and professional soloists;
   d) To Porto audience;
   e) Integrated in the 250 years of Mozart birth;
   f) With other Porto amateur choirs.

The following table shows the satisfaction level meanwhile obtained through these surveys.

Table 1: “Mozart Requiem” surveys results

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Effectively, for all Erasmus students, the participation in this event was important in an educational, cultural and social point of view (very important to the Turks and important to the Norwegian).

Related to the fact of this event had been accomplished outside ESE-IPP and to a different public than the school public, the opinions are divided between very important to two Turks and important to one Turk and the Norwegian.

Referring to the lived ecumenical moment, the participation was only very important for the Turks and indifferent to the Norwegian.

Regarding the fact home universities promote similar events to Erasmus students and the school community, the answers had been affirmative by the Turks and negative by the Norwegian, who said that he is going to suggest the accomplishment of such activities in his university in the future.
As for the importance of singing the “Mozart Requiem”, the Erasmus students have unanimously answered that it was extremely important to have done it with their music colleagues, with orchestra, maestro and professionals soloists, to the Porto audience and with the remaining amateur choirs. As to having sung with ESE-IPP teachers and the international relations coordinator, or even during Mozart birthday, it was very important to the Turks and only important to the Norwegian.

After becoming public these results to the school direction, they authorized the accomplishment of a Portuguese language and culture course. They have, equally, authorized to hire an assistant secretary to the international relations office, instead of the two teachers and they also promised to consider the assignment of a small budget to the office.

References

The Magic of Storytelling

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Storytelling captures and reflects many facets of the human experience. Some tales relate astounding deeds of a country’s heroes, teach life’s lessons, or reveal human foibles. Other tales fuel the reader’s or listener’s fantasy with magical occurrences. Tales of magic have captured the imagination of children and adults throughout human history. Sleeping spells, supernatural creatures, talking eggs, or objects that bestow boons all inhabit the realm of the magic tales of people around the world. Wishes take wing, aspirations are realized, and the world is, or becomes, a safe, delightful place in magic stories. What is it that makes magic tales so appealing? What features distinguish the magic/fairy tale? Do fairy tales have value for adults? For children? What are the different types of fairy tales as represented by the classic European tales?

Various theoretical approaches will be used to answer these questions and examine the motif of magic in folk tales: the structural approach advocated by Jones (2002) and Luthi (1976); the psychological interpretations offered by Bettelheim (1977) and von Franz (1996); and the socio-historical approach proffered by Zipes (2006).

Features of fairy tales

Folklore, or traditional literature, so named because it comes from the oral tradition, includes mythology, fables, legends and folktales. Tales of magic, also known as wonder tales or fairy tales, are among the most well-known and beloved of folklore, and are categorized as a subgenre of folktales. Although such stories may contain fairies, most of the fairy tales do not. However, they do contain magic elements.

Prior to the eighteenth century fairy tales were such a common source of entertainment for both adults and children that they were for the most part, taken for granted, an unexamined part of the fabric of human existence. When Jacob and Wilhelm Grimm began to collect fairy tales in Germany in the early 1800s, as part of the Romantic Movement, they sought to preserve the oral tradition of the German people (von Franz, 1996). The Grimm brothers’ collection of tales was widely popular and triggered a surge of fairy tale collecting in several European nations. Immediately, recurrent themes in the collection of tales became evident.

Antti Aarne examined the tales collected by the Brothers Grimm and created a system for indexing folktales according to similar motifs, such as Beauty and the Beast tales (von Franz, 1996). Stith Thompson revised and expanded Aarne’s index, leading to a joint creation—The Types of the Folktale, which lists fairy tales as “Tales of Magic,” with the tale type numbers 300–749 (Jones, 2002). A review of the fairy tale motif yields some common structural features, despite the wide variety of tales that belong in the category.

According to Jones (2002), the fairytale is a narrative genre that has numerous variations, but also possesses basic characteristics. Primary among those characteristics is the inclusion of magical or marvelous occurrences as legitimate components of the human experience, in fact, the dimension of magic is central to the story. Jones explains that the protagonist is usually an ordinary individual with whom the reader/listener can identify and is typically a young person. Luthi (1976, 1970) adds that the protagonist is frequently from a remote segment of society. Typically, the protagonist embarks on a quest or must solve a problem that involves interacting with the magical realm thus validating the existence of magic in the world. The protagonist achieves success that affirms “the moral propriety of the universe,”
so the messages are clear—generosity and kindness are rewarded, whereas greed and cruelty are punished. An example is the tale of the kind and unkind child in which the kind sister is rewarded by having diamonds fall from her mouth when she speaks, while her unkind sister is punished for her greedy and cruel nature when toads fall from her mouth. Finally, Jones contends that themes in fairy tales address life issues faced by audiences at differing stages of development and can be categorized by their focus on a particular audience. For an audience of young children, stories with themes that address parental abandonment, authoritarian parents, or sibling rivalry are especially meaningful. For the prepubescent child, themes of sexual maturation and overcoming obstacles to finding a mate are relevant. Jones (2002) believes that adult audiences react to tales whose themes address such issues as coping with marital strife or daily life.

Luthi examines both the style and symbolic meaning of fairy tales. In Once Upon a Time: On the Nature of Fairy Tales (1976), he argues that we are ambivalent about fairy tales, derogatively stating, “don’t tell me any fairy tales,” referring to lies, but also using the descriptor “like a fairy tale,” for that which is beautiful. He explains, “We love the fairy tale not only for its wisdom, but also for the manner in which it is told; its external appearance, which varies from people to people and from narrator to narrator, also delights us” (p. 26). Luthi points out that a distinctive feature of the fairy tales’ external appearance is repetition, which generates a rigidity of form and intensifies the action at the same time that it provides an internal integrity of structure. Such repetition is evident in “Goldilocks and the Three Bears” where all three events occur in the same order, papa bear, mama bear and baby bear. However, repetition sometimes includes isolated episodes as seen in the story of “The Three Little Pigs.” Even though the third pig fools the wolf twice by going earlier than arranged to pick apples (or turnips), the wolf doesn’t manage to notice how he was being fooled in the first two episodes. The repetition of three also demonstrated fairy tales’ partiality toward certain numbers. The number three is evident in the previous examples, but other favored numbers, as Luthi observes, are seven, twelve, and one hundred. Other stylistic features of fairytales that Luthi highlights are characters who come from the edge of society, such as goose girls and princes (although this is not too surprising, considering the era in which these stories arose) and the use of extremes, such as giants and dwarves, lank hair versus beautiful tresses, punishment and rewards. The use of opposites coincides neatly with Levi-Strauss’ analysis of structured opposites in folklore (1967).

Luthi (1976) points out that certainty and sharpness are observable in fairy tales, thus objects are sharply defined, solid and clearly formed, as evident in a ring, a sword, or wooden objects. He states that “the fairy tale displays an imperishable world, and this explains the partiality for everything metallic and mineral, silver, gold…: (p. 45). Another feature Luthi describes is the absence of non-essential details in European fairy tales, which provides the fairy tale with its clarity and precision. He notes that monsters, for example, are not described in detail. An examination of most tales will reveal that the heroes and heroines are not given specific description besides being simple, clever, comely, or kind-hearted. Our image of Cinderella, for example, comes from illustrators or animators, not from the text of the fairy tale. Bettelheim (1976) contends that illustrations for fairy tales are distracting rather than helpful, reducing the child’s ability to infuse her own meaning in the tale.

In addition to sparse detail and objects that display permanence and solidity, Luthi (1976) observes that fairy tales exhibit a sharply defined course of action. Little description is attributed to characters or to their inner feelings; rather, relationships among characters is externalized. Objects frequently reveal the connections between characters. Thus, the ring that Princess Furball (Huck, 1994) slips into the soup she makes for the prince is one of the objects that makes her true identity known to him.

Another observation Luthi makes is that timing is always crucial in fairy tales (1976). The hero arrives at the last second; success is achieved in the nick of time. As an example of this trait, consider the Grimms’ tale of “The Seven Swans” where the sister who has maintained silence as part of the requirement for disenchanting her brothers and so cannot explain or defend herself, is knitting the last of the shawls for
her brothers, the enchanted swans as a fire is being laid and lit at her feet just as the swans appear and she clothes them, breaking the spell.

**Value of folk and fairy tales**

Bruno Bettelheim uses a psychological approach to explain the nature and appeal of fairytales to young children. In *The Uses of Enchantment: The Meaning and Importance of Fairy Tales* (1977), he claims that children’s intellectual growth is supported by traditional literature, such as legends and mythology that provide the child with an understanding of the world’s origins and heroes the child can emulate. Myths and fairy tales answer the questions, “What is the world like? How should I conduct myself in it?” (p. 45). Bettelheim distinguishes between myths and fairy tales, however. He describes myths as pessimistic in tone and focused on success at a societal, rather than a personal level. The child understands that what happens to the hero in the myth will not happen to her. In fairy tales, on the other hand, the tone is optimistic, directed at the hero’s personal happiness, ends happily ever after, and the child sees that these occurrences and outcomes could apply to her, too.

Bettelheim (1977) explains that myth and fairy tales speak in symbolic language that represents unconscious content. Bettelheim posits that through this symbolic language, fairy tales assist children to discover their identity, their calling, and what they need to further develop their character. He states that in fairy tales internal psychological processes are externalized and become understandable to the child because they are represented by figures in the story. Thus, while fairy tales do not literally represent the external world, they capture the inner world that the young child does not have language or cognitive structures to understand or control. In Cinderella, for example, the child can feel justified in his feelings of jealousy for his siblings, and find confirmation for his belief that everything will turn out all right in the end. Even more importantly, children will see that as they grow up, their persistence in overcoming obstacles will be rewarded. Bettelheim proposes that fairy tales suggest that a good life is possible if children don’t avoid hazardous struggle. In addition, he suggests that children may learn to accept the valuable life lesson that appearances can be deceiving when they listen to tales in which a repulsive figure magically changes into a helpful friend.

Von Franz concurs that children readily identify and absorb the feeling of the story. She suggests that if children hear a story about a pitiable character, children with inferiority complexes will identify with that character and hope that they will also win a princess (or prince) in the end. This, she states, is as it should be, “it gives a model for living, an encouraging, vivifying model which reminds one unconsciously of all life’s positive possibilities” (1996, p. 73).

**Appeal of fairytales**

According to Bettelheim (1977), children trust the suggestions implicit in fairy tales because their portrayal of the world is in synchrony with children’s thought patterns. Researchers (Piaget, 1929; Rosen gren & Hickling, 1994; Nemeroff, & Rozin, 2000; Woolley, 2000) differ in their explanation for the source, typical age, and precise nature of children’s magical thinking, but agree that children do engage in magical thinking, such as wish fulfillment or belief in supernatural beings or occurrences. Children can clearly relate to the granting and/or fulfillment of wishes that is an integral part of many fairy tales.

Bettelheim (1977) asserts that children are animistic in their thinking, as well. Thus, he contends, children believe that real or toy animals as well as inanimate objects could talk. Bettelheim proposes that, in concert with their egocentric nature, it is logical to children that these animals would talk about issues important to the child and would naturally want to help the child achieve her purposes. Since animals can roam the world freely, the child perceives them as appropriate companions and guides for the hero in a tale. Furthermore, since everything that moves is alive, the wind could carry a child where she wants to go as in the story, “East of the Sun, West of the Moon.” Even silent objects can come to life and give
the hero advice (Bettelheim, 1977). The child projects her spirit onto others, and so it is believable that people can change into animals and vice versa (Bettelheim, 1977, p. 47).

Fairytales with themes of fulfilling wishes, winning out over all competition and destroying enemies are powerful stories because the tales express what we would censor in our daydreams and are unable to control in our dreams. The child who identifies with the hero who can perform magical deeds is able to compensate in fantasy for the limitations of his own young body. He can imagine that he, too, can climb into the clouds, defeat a heinous enemy and satisfy his wishes. Bettelheim (1977, p. 58) contends that a child is then more able in reality to accept his own real or imagined inadequacies. Repeated exposure to such fantasies helps children to internalize and discuss their understandings of themselves and the world that the fairy tale offers them.

**Variations in fairy tales**

Magic and fantastic occurrences take a variety of forms in fairy tales. Magical creatures, such as fairy godmothers, fairies, witches, and ogres can serve as helpers or hindrances, respectively. The classic example of the helper is the fairy godmother in Perrault’s version of Cinderella who clothes the child who is abused in her own home with the garments that befit her station in life. In the Grimm Brothers’ version of the story, birds come to Cinderella’s assistance, helping her to pick lentils from the ashes where her stepmother had cast them, with orders that Cinderella must remove them. When her stepmother still refuses to allow Cinderella to attend the ball, she goes to the tree growing at her mother’s grave and asks for clothes to wear to the ball. Luthi (1970) points out that Cinderella, rejected and humiliated by people, is helped by the natural world, the birds, a tree and even more, by the love of her deceased mother. Thus, he describes this tale as an initiation, where the hero endures cruelty and deprivation, but is called to a higher existence. It also addresses the matter of appearance and reality, and like the lentils the real is separated from the false with the assistance of magical beings and creatures.

“Hansel and Gretel” offers the image of a magical hindrance in the form of a witch who wants to eat the children. Luthi (1970) identifies the witch as an echo of the mother/stepmother who persuaded the children’s father to lose the children in the woods because there was not enough food for everyone. Thus, the mother takes the unnatural step of putting her own hunger before her children’s. After Gretel overcomes the evil witch by pushing her in the oven, the children return home to find the mother/stepmother gone, too.

Magical objects may provide protection, guidance, or sometimes, food to the heroes in fairy tales. A cooking pot that provides an endless supply of food appears in Strega Nona where Big Anthony, Strega Nona’s foolish assistant, wants to impress the townspeople by using her magic pasta pot, but he never learned the magic trick of turning it off, with predictable disastrous results, befitting one who not only behaves like a show-off, but also fails to understand the power of magic.

Magic may also take the form of an enchanted place, often above or below the earth. “Jack and the Beanstalk” takes place in a magical realm at the top of the beanstalk where Jack confronts an ogre and secures a comfortable future for himself and his mother. Bettelheim (1977) offers a Freudian analysis of this story as maturation from the oral stage (the cow dries up) to the phallic stage while working through the oedipal stage when Jack confronts the giant, a father figure. He observes that this story is a good example of a fairy tale allowing a child to understand, on an unconscious level, and gain assistance with a developmental stage without having to recognize the psychosexual interpretation of the story on the conscious level (pp. 190–191).

Enchantment is a classic form of magic in fairy tales. The story of “Beauty and the Beast” is an example of the animal-groom tale. Bettelheim (1977, p. 283) describes three typical features of this motif: The reason the groom was changed into an animal is unknown; a sorceress has enchanted the man and is
not punished for doing so; and the father of the girl is responsible for turning her over to the animal groom, she willingly joins the beast out of obedience to her father. Bettelheim offers the suggestion that the long ago, unexplained enchantment refers to an early explanation by a mother that sex is taboo. For the beast to be disenchanted the girl must love him truly and be able to transfer to him her oedipal love for her father. Thus, Bettelheim supposes that since the beast is typically male (in Western culture), the tales imply that a happy union can only be achieved if the female is able to overcome her view of sex as loathsome and animal-like.

Zipes (2006) offers a socio-historical interpretation of “Beauty and the Beast” as a discourse on manners and social class. His interpretation of de Beaumont’s version of the tale identifies the beast as a genteel person of noble birth who asks Beauty, a virtuous member of the bourgeoisie, to be his wife. De Beaumont approved of the alliance between the bourgeoisie and aristocracy, but makes her views of strict codes of conduct evident. Beauty refuses the beast’s requests at first, but eventually asserts so that a fairy appears and presents the handsome prince to her as the reward for her good choice of virtue over beauty and wit. In contrast, her sisters are turned to statues as warning against envy and spitefulness.

Conclusion

This brief examination of fairy tales provides evidence that fairy tales continue to have appeal for both children and adults. Part of the appeal of fairy tales is the opportunity to form a concept of how the world works and what our place should be in it. Although fairy tales were “just there,” for hundreds of years without examination, an integral part of everyday existence, now they are analyzed as literary works, for the benefits they offer to imaginative children and adults, for their contribution to human psychosexual development, and as indicators of socio-political context. Can they still offer the magic of story if one plumbs their depths? Does analysis desiccate the story? Surely, it is possible for listeners and readers to maintain a dual approach, scholarly at times, but also capable of being transported to a place where persistent struggle against adversity, with the help of a little magic, is rewarded and the reader can bring some of the magic back to the real world where challenges await and a little magic couldn’t hurt.

References

Once Upon a Time in Africa—Tales Between the Ethics and the Aesthetics

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This presentation will make you look at African cultures through tales. It will enable you to recognize, define, create and understand characteristics, elements, the style and tone of African folk tales and myths, and hopefully add to your enthusiasm of multicultural literature. I hope to motivate learning as well as foster enjoyment.

Let us take a look at the following quotations as the departure motif for this presentation:

“... It is only the story that can continue beyond the war and the warrior. It is the story that outlives the sound of war-drums and the exploits of brave fighters. It is the story...that saves our progeny from blundering like blind beggars into the spikes of the cactus fence. The story is our escort; without it, we are blind. Does the blind man own his escort? No, neither do we the story; rather it is the story that owns us and directs us.” Chinua Achebe, Anthills of the Savannah (1987)

“I will tell you something about stories....They aren’t just entertainment... They are all we have... to fight off illness and death. You don’t have anything if you don’t have the stories.” Leslie Marmon Silko, epigraph to Ceremony (1977)

Our heritage is created upon myths and tales. This is the foundation for all cultures. Every human culture in the world seems to create stories as a way of making sense of the world. Let us then begin our journey into African folk tales and myths and further our exploration of multiculturalism.

African literature has been orally passed from generation to generation. There is a rich, fertile legacy of folklore from Africa. African folklore plays a major role in traditional systems of education: it enforces conformity to social norms and it validates social institutions and religious rituals.

Narrative is more functional in oral cultures than in others. Since oral cultures cannot generate abstract or scientific categories for coding experience, they use stories of human (or anthropomorphised animal) action to organize, store and communicate knowledge and experience. As non-literate societies, traditional Africans depended (and many still do) on their legends and folk stories to explain their roots and cultural history.

Stories in Africa were traditionally passed down by word of mouth by the elders and by the parents (but mostly mothers) who told the folk stories to teach young ones ethics, morality and the culture of the community. Through storytelling they tried to inculcate in their children good behaviour, manners, hard work, obedience, fairness and submission to the authorities of the elders and the ancestors—virtues which constitute the bedrock of African social, political, religious and ethical morality.

On this vast continent, folk tales and myths, but also legends/epic tales, religious stories/parables, and even proverbs and riddles have traditionally been used as a means of handing down traditions and customs from one generation to the next, of warning against wicked behaviour or to inspire young people to lead a virtuous life, thereby preparing them for adulthood.

The storytelling tradition has thrived for generations because of the absence of printed material. When a new cultural system based on the written word superimposed upon the ancient oral traditional culture (as a result of colonisation), the literature of the oral society didn’t disappear; rather, a synthesis took
place in which characteristics of the oral culture survived and were absorbed, assimilated, extended and even re-organized within a new cultural experience. Modern African literature illustrates the merging of the worlds of orality and literacy. One major example of this interplay of the oral and literary traditions in the African novel is the story-within-the-story (the story embedded within the narrative matrix of a novel).

Because the new writers themselves are a product of both the oral tradition and literate education, they have incorporated oral traditional forms in their written works to give maximum authenticity to their works, to localize the content of their works, to link their past with their present experience, in other words, to decolonise literature in Africa and achieve literary independence from the European literatures. They also included oral tradition, at the dawn of independences, to educate fellow Africans and give them confidence in their cultural heritage and to enlighten outsiders and help them get rid of the false impression about African cultures acquired from years of cultural misrepresentation. That was precisely the role assumed by a world acclaimed Nigerian author, Chinua Achebe, considered the founder of modern African literature.

In modern Africa, literature becomes the crossroads, the meeting point of two cultural dimensions. The African writer tries to combine a content he wants he wants to be connected to the African traditional cultural matrix, with an imported form, that is, connected to the cultural tradition of the former colonial power. Though written in European languages, modern African literature comes out distinctly African.

The invocation of folk tales in creating modern literary works is, thus, a means by which African and other postcolonial authors reinterpret and revalidate narrative resources that are part of their own heritage.

“The modern African writer is to his indigenous oral tradition as a snail to its shell. Even in a foreign habitat, a snail never leaves its shell behind.”

The African oral tradition is the great source of inspiration for modern African literatures and this shows the capacity of the African to preserve his culture in spite of the generalized efforts from the colonialist Europeans to assimilate him or make him despise African values.

The study of African myths, tales and legends serve to illustrate the colourful heritage of a unique continent while providing us with an enhanced view of its culture. The study of these narrative forms highlights the way in which the people share a close bond with the elements of nature. Nature stands as the foundation upon which the people of Africa build their villages, towns and communities. Elements of nature can be found in the countries’ indigenous religions where God, man and nature are fused. The African people maintain a high reverence for all things natural. As part of their desire to give praise and thanks to the natural elements, they immortalize nature through stories.

In the African folk tales, the stories reflect the culture where animals abound; consequently, the monkey, the elephant, the giraffe, the lion, the zebra, the crocodile, and the rhinoceros appear frequently along with a wide variety of birds. The animals and birds take on human characteristics of greed, jealousy, honesty, loneliness, etc. Through their behaviour, many valuable lessons are learned. Also, the surroundings in which the tales take place reveal the vastness of the land and educate the reader about the climate.

African myths employ a lot of magic animals. People from every country have wondered about the origins of animals, and in Africa which has such an immense variety of wildlife, there are many stories that explain different characteristics and origins. An example of this is Tanzania, where the giraffe is the national emblem; a story is told that after God had exalted all the animals, he asked each one if they had

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a special wish. The giraffe said, “Lord, my wish is to have wisdom.” “Well spoken,” God answered, “and so you will never speak, for talkative people are fools, but silence is wisdom.” That is why the giraffe sees and hears everything, but never makes a noise.

Knowing about religion, laws, cosmogony, traditions and customs is an integral part of the learning that can be derived from folk tales, myths and oral tradition, in general. Most of these tales, as we will see, provide an aetiological explanation and/or a moral lesson at the end.

From all the narrative forms belonging to the African oral tradition, I decided to focus in more detail on myths and folk tales, to fit more adequately the TIG I belong to, namely, “Myths and Fairy Tales”.

In Africa, the frontier between myths and tales is, sometimes, thin. The African folk tale, besides proposing universal morals, deals, frequently in a mythical way, with certain social customs or natural phenomena in an attempt to explain the universe. There is, thus, a certain coincidence of the two narrative forms’ aims and characteristics. What we can say to distinguish one from the other is that from the moment the myth starts to lose its sacred outlook, we enter the tale’s dominion.

The great myths can teach us many things for in them we find history and geography and astronomy and world origins. But most of all, we find the struggles of human beings to know where they fit in this world, including all the passions and frailties that are to be found in humans today. These myths have survived through the centuries because they have had something important to say, and because people of widely disparate ages and cultures have found in these tales lessons and inspiration for their own lives.

In Africa, like in other places of the world, there is an important body of myths or sacred tales received from the antiquity. Myths take place in an ancient time before the world was as it is today. They are supernatural stories which man created to explain the problems and mysteries of life and death.—his attempt to make sense of the bewildering complexity of existence.

Here is a myth from the Igbo people in Nigeria based on the belief on reincarnation:

When death first entered the world, men sent a messenger to Chukwu, asking him whether the dead could not be restored to life and sent back to their old homes. They chose the dog as their messenger. The dog, however, did not go straight to Chukwu, and dallied on the way. The toad had overheard the message, and as he wished to punish mankind, he overtook the dog and reached Chukwu first. He said he had been sent by men to say that after death they had no desire at all to return to the world. Chukwu declared that he would respect their wishes, and when the dog arrived with the true message he refused to alter his decision.

Thus although a human being may be born again, he cannot return with the same body and the same personality.

There are hundreds of different versions of this myth all over Africa. Sometimes the messenger is the dog, sometimes, the chameleon or the lizard or some other animal. In some versions the message is garbled through the incompetence of the messenger, or through his calculated malice against men. In others, man in his impatience sends a second messenger to god who in anger withdraws the gift of immortality. But whatever variations in the detail, the dominant theme remains: men sent a messenger to their Creator with a plea for immortality and He is disposed to grant their request. But something goes wrong with the message at the last moment. This gift that would make man more like the gods is snatched from him forever.

Achebe includes in Things Fall Apart, the cosmic myth of the quarrel between Earth and Sky to explain some natural phenomena.
“He remembered the story she often told of the quarrel between Earth and Sky long ago, and how Sky withheld rain for seven years, until crops withered and the dead could not be buried because the hoes broke on the stony Earth. At last Vulture was sent to plead with Sky, and to soften his heart with a song of suffering of the sons of men. [...] Vulture, Earth’s emissary, sang for mercy. At last Sky was moved to pity, and he gave Vulture rain wrapped in leaves of coco-yam. But as he flew home his long talon pierced the leaves and the rain fell as it had never fallen before. And so heavily did it rain on Vulture that he did not return to deliver his message but flew to a distant land, from where he had espied a fire. And when he got there he found it was a man making a sacrifice. He warmed himself in the fire and ate the entrails.” (Chinua Achebe—Things Fall Apart, London, Heinemann, 1958, pp.53–4)

The narrative sequences are complete except for the aetiological tail which is missing. Conventionally the myth should end with the explanation that it shows why, whenever sacrifices are being offered, vultures are to be seen hovering in the sky and often descend to eat the substance of the sacrifice. [in this case the absence of aetiology is understandable because it was not structurally relevant to the themes of TFA.]

The tale of the Vulture also attempts to explain why Nigeria has two seasons: a rainy season and a dry season to describe the effect of seasonal changes on migratory birds like the vulture. As a didactic animal tale, the Vulture tale has some morals that parents must inculcate in their children, e.g., that children should learn to be good emissaries. And because the conflict between the Earth and the Sky also reflects a basic conflict between male and female powers or principles, this myth also aims at teaching that men and women should learn to live in peace, otherwise their quarrel could result in social disasters for their children, just as children of the Earth suffer because of the quarrel between Earth and Sky.

But the myth subscribes the triumph of imagination over power, in so far as the cosmic quarrel is not solved through a demonstration of masculinity and strength, but rather through conciliation and affection embodied by the song. And the rain is, meaningfully, wrapped in leaves of coco-yam which is a female culture (contrarily to yam which is a male crop). Thus this myth, in a certain way, favours the female principle of creativity over pure masculinity.

Within the African folklore, the animal tales are probably the most popular type of stories. The language of communication is human and there is no way of identifying the animals except by name. The characters are mere agents embodying ideas. They develop only slightly or not at all.

**Trickster tales**

Though trickster tales come under didactic animal tales or fables, they are treated separately to emphasize society’s attitude towards trickery, especially when someone plays it on his own people.

Many West African folktales feature the antics of a trickster figure, an animal character endowed with human qualities, whose mischievous ways and extraordinary capabilities create problems for the other characters in the tales. Physically weak and seemingly vulnerable creatures are often endowed with special intelligence and human characteristics. And, ironically, large, powerful animals like the lion, the elephant and the leopard are often duped in such animal stories, often through what are considered their centres of thought: the stomach and the heart.

The trickster is then wise and cunning, he deceives others but the trickster tale also teaches what one should not do when he is motivated by greed and takes inappropriate advantage of others. At the end of such a tale, the trickster figure often becomes the victim of his own schemes and is shamed.
Two of the most popular trickster figures in West African folktales are:

- Anansi, the spider—e.g. in many tales from Ghana. This spider can be wise, foolish, amusing, or even lazy, but there is always a lesson to be learned from Anansi. Because of the history of this large continent, which includes the forceful transplanting of the people into slavery on other continents, many of the same folk tales exist in North America, South America, and the West Indies. The spider tales have travelled from Africa to the Caribbean Islands. Sometimes the spelling is changed from Anansi to Ananse. In Haiti the spider is called Ti Malice. Anansi stories also came into the United States through South Carolina. The Anansi spider tales are told as Aunt Nancy stories by the Gullah of the south-eastern part of the U.S.²

- the tortoise (sometimes called Ajapa)—e.g. a common figure in folktales told among the Yoruba (southwest of Nigeria) and the Igbo (southeast of Nigeria). Tortoise is physically slow but quick witted; by living a long life, he has a long memory and by studying fellow creatures in society, he gains a kind of wisdom. But like in the folklore of many worlds’ cultures, he misuses his knowledge and is punished. The African tale’s tortoise may be somewhat different from the European’s. Taking the tale “The Tortoise and the Hare” as an example, we can see that in African versions of this tale, the tortoise almost always wins because of his brilliance, because he uses his wits. In the European versions, on the other hand, the tortoise mostly wins through sheer endurance and grit.

Next you have an example of a tale from West Africa which includes not just one trickster figure, but two.

ANANSI AND TURTLE

One day Anansi the spider picked some very fat and tasty yams from his garden. He baked them with much care and they came out smelling quite delicious. He could not wait to sit down and eat them. Just then there was a knock at his door. It was Turtle, who had been travelling all day and was very tired and hungry.

✎ Hello, Anansi!—said Turtle. I have been walking for so long, and I smelled the most delicious yams I’ve ever smelled. Would you be so kind as to share your meal with me?

Anansi could not refuse, as it was the custom in his country to share your meal with visitors at mealtime. But he was not very happy, for Anansi was a little too greedy and wanted the delicious yams all to himself. So Anansi thought to himself and came up with a scheme.

✎ Please do come in, Turtle. I would be honoured to have you as my guest this evening. Sit down, have a chair and help yourself.

Turtle came inside and sat down, but just as he reached for a yam, Anansi yelled,

✎ Turtle, don’t you know better than to come to the table with dirty hands?

Turtle looked down at his hands and saw that they were filthy. He had been crawling all day and had not had a chance to clean up. Turtle got up and went to the river to clean his feet. He walked all the way back up to the house and Anansi had already begun to eat.

✎ I didn’t want these tasty yams to get cold, so I had to begin, said Anansi. But please do join me now, Turtle.

² Gullah refers to a group of African Americans who live on sea islands and in the coastal areas of South Carolina, Georgia and northern Florida. The term refers to the people, their language and culture. The Gullah people are descendents of slaves brought from the West Coast of Africa. Today, they carry on the traditions of their African ancestors through craft (basket sewing, net making, pottery, and woodcarving), cooking, music, storytelling, medicine and religious belief.
Turtle sat down again and reached for a yam, but again Anansi yelled at him.

✎ Turtle, did you not hear me before? It is not polite to come to the table with dirty hands!

He looked down and saw that his clean hands had turned dirty once more, since he had to crawl on them to get back to the house. So he walked down to the river once more to wash himself off. And when he returned this time, he was careful to walk on the grass so his hands would stay clean. But by the time he sat down at the table, Anansi had finished up the last bit of the tasty yams and not so much as a morsel was left. Turtle looked at Anansi for a moment and then said,

✎ Thank you for sharing your meal with me. If you ever find yourself near my house, please let me return the favour.

And then he slowly walked out the door and continued on his way. The days went by and Anansi thought more and more of that meal that Turtle had offered. He got more and more interested in a free dinner and finally could not stand it anymore. He set off one day to find Turtle’s house. He found Turtle sunning himself on a riverbank just around dinnertime. Turtle looked up and saw him and said,

✎ Hello, Anansi, have you come to share evening meal with me?

✎ Oh yes, yes! said Anansi, who was growing hungrier and hungrier by the minute.

Turtle went underwater to his house to set up the dinner table for the two of them. Soon he came back to the bank and said,

✎ Your place is waiting and the food is ready. Please join me, Anansi.

And then he dived underwater and began to slowly eat his meal. Anansi jumped into the water, but could not get down to the bottom of the river. He tried to swim down, but he was so light that he kept popping back up to the surface. He tried diving. He tried belly flops. He tried a running jump, but nothing would help him get down to the river bottom. In the meantime, Turtle was slowly eating his meal. Anansi was not about to give up a free meal, and was running around wondering what he would do. Finally he had an idea. He started grabbing stones and rocks and stuffed them into his jacket pockets. Now when he jumped into the water he sank right down to the bottom and was able to take his place at the table.

The table was so beautiful and full of delicious foods! Anansi could hardly believe how many tasty foods were before him and could not wait to start his meal. But just as he reached for the first morsel, Turtle stopped eating and spoke.

✎ In my country, we do not wear our jackets to the table.

Anansi noticed that Turtle had removed his own jacket before sitting down. Anansi started to remove his jacket, and as soon as it was off of his shoulders, he went zooming back up to the surface and popped out onto the riverbank. He stuck his head down into the water and saw Turtle slowly enjoying that wonderful banquet.

Moral of the story: When you try to outsmart someone, you may find that you’re the one outsmarted.

Aetiological tales

Besides conveying a moral, animal tales may attempt to explore the reasons or causes for a certain fact, thus presenting an aetiological explanation. Do you know why mosquitoes seem always to be buzzing around our ears? No? Then listen to the reason.
MOSQUITO AND EAR

“Mosquito had asked Ear to marry him, whereupon Ear fell on the floor in uncontrollable laughter.

✎ How much longer do you think you will live?—she asked. You are already a skeleton.

Mosquito went away humiliated, and any time he passed her way he told Ear that he was still alive.”

(Chinua Achebe—Things Fall Apart, London, Heinemann, 1958, p.75)

Achebe has included in Things Fall Apart this animal aetiological tale to explain why mosquitoes seem to buzz and bite the ear more than they do other parts of the human body, a common experience in any tropical country. But more important than this is that Mosquito and Ear function as the archetypes of the masculine and feminine figures in the sense of gender conflict. Ear fails to marry an eligible suitor, Mosquito, because he looked skinny. Therefore, the story is intended to teach people not to judge or deride others just because of appearance.

Achebe also integrates a fable in another novel, Anthills of the Savannah (1987), the tale of “Tortoise and the Leopard”.

“Once upon a time the leopard who had been trying for a long time to catch the tortoise finally chanced upon him on a solitary road.

✎ Aha! he said, at long last! Prepare to die.

And the tortoise said: “Can I ask one favour before you kill me?”

The leopard saw no harm in that and agreed.

✎ Give me a few moments to prepare my mind, the tortoise said.

Again the leopard saw no harm in that and granted it. But instead of standing still as the leopard had expected the tortoise went into strange action on the road, scratching with hands and feet and throwing sand furiously in all directions.

✎ Why are you doing that? asked the puzzled leopard.

The tortoise replied: “Because even after I am dead I would want anyone passing by this spot to say, Yes, a fellow and his match struggled here.”


Achebe used this fable as a political meditation on the imperative of struggle. This tale, according to Achebe, works as a metaphor for the writer:

“...our human condition is that we shall always struggle, struggle to achieve our utmost. Even if we shall never see it, our lives would be incredibly reduced if we were not to struggle. I don’t know whether what I’ve done will bear any fruit, but whether it does or not, I like to feel that when I go, then those who come behind will say that although I may have failed, I struggled.”

You will now listen to the Tale of the Tortoise and the Birds, a self-contained story within the novel Things Fall Apart. It is told by one of the main character’s wives, Ekwefi, to her daughter Ezinma.

‘Once upon a time,’ she began, ‘all the birds were invited to a feast in the sky. They were very happy and began to prepare themselves for the great day. They painted their bodies with red cam wood and drew beautiful patterns on them with uli.

‘Tortoise saw all these preparations and soon discovered what it all meant. Nothing that happened in the world of the animals ever escaped his notice; he was full of cunning. As soon as he heard of the great feast in the sky his throat began to itch at the very thought. There was a famine in those days and Tortoise had not eaten a good meal for two moons. His body rattled like a piece of dry stick in his empty shell. So he began to plan how he would go to the sky.’

‘But he had no wings,’ said Ezinma.
‘Be patient,’ replied her mother. ‘That is the story. Tortoise had no wings, but he went to the birds and asked to be allowed to go with them.’

“We know you too well,” said the birds when they had heard him. “You are full of cunning and you are ungrateful. If we allow you to come with us you will soon begin your mischief.”

“You do not know me,” said Tortoise. “I am a changed man. I have learnt that a man who makes trouble for others is also making it for himself.”

‘Tortoise had a sweet tongue, and within a short time all the birds agreed that he was a changed man, and they each gave him a feather, with which he made two wings.
‘At last the great day came and Tortoise was the first to arrive at the meeting-place. When all the birds had gathered together, they set off in a body. Tortoise was very happy and voluble as he flew among the birds, and he was soon chosen as the man to speak for the party because he was a great orator.

“There is one important thing which we must not forget,” he said as they flew on their way. “When people are invited to a great feast like this, they take new names for the occasion. Our hosts in the sky will expect us to honour this age-old custom.”

‘None of the birds had heard of this custom but they knew that Tortoise, in spite of his failings in other directions, was a widely-travelled man who knew the customs of different peoples. And so they each took a new name. When they had all taken, Tortoise also took one. He was to be called “All of you”.
‘At last the party arrived in the sky and their hosts were very happy to see them. Tortoise stood up in his many-coloured plumage and thanked them for their invitation. His speech was so eloquent that all the birds were glad they had brought him, and nodded their heads in approval of all he said. Their hosts took him as the king of the birds, especially as he looked somewhat different from the others.’

‘After kola nuts had been presented and eaten, the people of the sky set before their guests the most delectable dishes Tortoise had ever seen or dreamt of. The soup was brought out hot from the fire and in the very pot in which it had been cooked. It was full of meat and fish. Tortoise began to sniff aloud. There was pounded yam and also yam pottage cooked with palm-oil and fresh fish. There were also pots of palm-wine. When everything had been set before the guests, one of the people of the sky came forward and tasted a little from each pot. He then invited the birds to eat. But, Tortoise jumped to his feet and asked, “For whom have you prepared this feast?”

“For all of you.” replied the man.
‘Tortoise turned to the birds and said, “You remember that my name is All of you. The custom here is to serve the spokesman first and the others later. They will serve you when I have eaten.”

‘He began to eat and the birds grumbled angrily. The people of the sky thought it must be their custom to leave all the food for their king. And so Tortoise ate the best part of the food and then drank two pots of palm-wine, so that he was full of food and drink and his body filled out in his shell.’
The birds gathered round to eat what was left and to peck at the bones he had thrown all about the floor. Some of them were too angry to eat. They chose to fly home on an empty stomach. But before they left each took back the feather he had lent to Tortoise. And there he stood in his hard shell full of food and wine but without any wings to fly home. He asked the birds to take a message for his wife, but they all refused. In the end Parrot, who had felt more angry than the others, suddenly changed his mind and agreed to take the message.

“Tell my wife,” said Tortoise, “to bring out all the soft things in my house and cover the compound with them so that I can jump down from the sky without very great danger.”

Parrot promised to deliver the message, and then flew away. But when he reached Tortoise’s house he told his wife to bring out all the hard things in the house. And so she brought out her husband’s hoes, machetes, spears, guns and even his cannon. Tortoise looked down from the sky and saw his wife bringing things out, but it was too far to see what they were. When all seemed ready he let himself go. He fell and fell and fell until he began to fear that he would never stop falling. And then like the sound of his cannon he crashed on the compound.

“No,” replied Ekwefi. “His shell broke into pieces. But there was a great medicine-man in the neighbourhood. Tortoise’s wife sent for him and he gathered all the bits of shell and stuck them together. That is why Tortoise’s shell is not smooth.”

(Chinua Achebe—Things Fall Apart, London, Heinemann, 1958, pp.96–99)

Some familiar features of the folktale, a common kind of story around the world, can be seen in this Igbo folktale:

- “Once upon a time…” — the classic formula beginning folk and fairy tales.
- The story explains a cause, origin or reason for something; it gives an aetiological explanation at the end, in this case, for ‘why the Tortoise’s shell is not smooth’.
- The story dramatizes a moral: greedy Tortoise, “full of cunning”, manages to trick the birds but for his selfishness is punished at the end.
- In folktale worlds, such “naughty” but not “irredeemably” wicked characters are often restored and/or reintegrated back into society: in this case “a great medicine-man in the neighbourhood” patches Tortoise’s shell together again.

The story is both aetiological and moral: it explains why Tortoise’s shell is rough, hard and uneven, but its main message is moral; it dramatizes the evil of extreme egocentrism. The moral of the story is premonitorily summarized by Tortoise’s own statement “I have learned that a man who makes trouble for others is also making trouble for himself”, which he uses to trick the birds into accepting him as a repentant trickster. They believe him. The particular moral of this tale reemphasizes the general moral of African or European or other didactic animal tales, which is that evil is punished but good is rewarded. The birds may have suffered momentary starvation, but Tortoise has to live with a broken and ugly shell throughout his life.

Despite these more or less universal features, to more fully understand and appreciate African storytelling traditions and this tale’s contents and purposes, one needs to study them in the context of the culture which has produced the story. Let us then emphasize what is revealed about the country’s culture through this folktale. There are several Igbo folkways that the tale embodies:

1. We notice the sense of community and attendant help which is rendered to Tortoise because the other animals have what he lacks. In the end, instead of being grateful for their kindness in allowing him to join in their feast and in giving him feathers which enable him to fly, he uses his talent, the power of oratory which no other bird has, to cheat them.
2. The tortoise arrives at the sky as one of the birds’ community and yet is not one of them. In seeking to become “all of you” he perverts the meaning of community and is clipped of his borrowed wings. This animal story carries the virtues which the community esteems, such as the magnanimity of the birds giving Tortoise wings, but it also contains the vices which that community condemns, such as the Tortoise’s greed. The story teaches that no individual should place his or her interests beyond or above those of the group that no individual can or should attempt to be “all of you”. In pursuit of individualistically determined obsessions the trickster comes into conflict with society. In traditional and rural Africa, the welfare and interests of the community are always put above individual interests.

3. Moreover the manner in which the story is told captures the flavour of the life and speech of the Igbo community.
   - the feast and the attendant preparations made by the animals that painted their bodies with cam wood and made beautiful patterns on them with uli (similar to the way Igbo women prepare themselves for festivities);
   - the Igbo custom of presenting kola nuts, breaking them and sharing/eating them with friends at the beginning of any social occasion;
   - the yam and the palm-wine as basic Igbo food and drink;
   - the compound (in a Igbo village) as the set of the father’s hut plus the huts of the several wives and children;
   - the man’s hoes, machetes, spears, guns tell us about the community Tortoise comes from but also about the Igbo society—a manly, warrior society.
   - the medicine-man as the member of the community with special, secret and magic powers to heal or to solve problems (= sorcerer)
   - the appointment of an orator as a spokesman, the reference to the sweet tongue as pointing to the power of oratory. Eloquence is a highly cherished value among the Igbo.
   
   These aspects are all familiar to members of the Igbo community.

4. The tale also underlines the Igbo folkway of according mutual respect to other people’s customs, even if those customs were different or hostile to theirs. As can be seen in the tale, the people of the sky don’t understand the custom of the people of the earth. However, they do not condemn it; rather, they merely observe perhaps to learn about it.

5. We also recognise that Tortoise’s starvation which went on “for two moons” reflects a manner of speaking and a way of calculating time which is consistent with the cosmology of the Igbo people. The lunar cycle is a traditional way in African cultures of delimiting time to break the year and create a temporal framework for the major annual festivities.

6. The tale also shows the necessary and traditional participation of the audience, in this case just represented by Ezinma’s comments and questions. Many of the African traditional folk tales have musical participation by the audience that adds much to the tale. It is common for the audience to ask or answer questions aloud, to clap their hands in rhythm to word repetition and to join in the chorus.

The simple aetiological explanations of things may not sound scientific to the modern mind, but they help the children understand the world around them. The stories make them curious as they try to become more observant of the creatures which live in their neighbourhood and ask the adults questions about them. Life’s experiences reveal universals and folk tales and myths may be fun. These myths and
folk tales may provide a humorous element which is always motivating in the teaching/learning process.

At an early age, respect is a quality that needs to be nurtured. Understanding and learning about how other people live in response to their environment will hopefully help the students increase their respect for others and acceptance of the difference of peoples around the world. African tales show where people in these cultures get their philosophy for life, how people in other cultures make sense of the realities of life and death. And these questions are universal for all cultures.

Besides the aesthetic dimension, African tales are important for their pedagogic role, for the moral lessons we have been referring to—they are pragmatically educational verbal art; they are applied art as distinct from pure; they embody ethics and aesthetics. African folk tales, in fact, entertain, inform and instruct. Learning from stories with moral lessons is important for two reasons. First of all there are lessons inherent in nature told in tales that are true and cannot be argued, and second of all, the giving of advice through stories is the most potent form of convincing at any time in history. They are a way of saying things in an indirect manner—through them problems can be talked about without directly offending anyone and advice given in an amusing and memorable way. In present day Africa, this function of the fable is still very much alive, and there are thousands of them which confirm that Africa was not a cultural vacuum before the coming of Europeans. Contradicting the stereotypical depiction of Africa as the “Heart of Darkness” (to use Joseph Conrad’s title of one of his most famous novels) and its peoples as “primitive” and “savage”, these folk tales, as well as the modern novels which incorporate them, depict communities possessing a language, a religion, a culture, with vices and virtues like other groups of people in the world. This is precisely one of the aims Achebe tries to attain:

“I would be quite satisfied if my novels (especially the ones I set in the past) did no more than teach my readers that their past—with all its imperfections—was not one long night of savagery from which the first Europeans acting on God’s behalf delivered them.”

Any study of cultures that extend outside of the identities of the students in the classroom, should be designed to elicit a strong appreciation, understanding and recognition of the differences that exist among the people of the world. The classroom is a bastion in which students may learn about acceptance, appreciation, understanding and awareness of all cultures. Multicultural education is a must in today’s society.

To finish this part of my presentation I will refer to two of the most important quotations from Achebe concerning his defence of multiculturalism.

“Did not the black people in America, deprived of their own musical instruments, take the trumpet and the trombone and blow them as they had never been blown before, as indeed they were not designed to be blown? And the result was it not jazz? Is any one going to say that this was a loss to the world or that those first Negro slaves who began to play around with the discarded instruments of their masters should have played waltzes and foxtrots? No! Let every people bring their gifts to the great festival of the world’s cultural harvest and mankind will be all the richer for the variety and distinctiveness of the offerings.”

“The world is big. Some people are unable to comprehend that simple fact. They want the world on their own terms, its peoples just like them and their friends, its places like the manicured little patch on which they live. But this is a foolish and blind wish. Diversity is not an abnormality but the very

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reality of our planet. The human world manifests the same reality and will not seek our permission to celebrate itself in the magnificence of its endless varieties.”

Creative writing activity

This presentation has provided you with an insight into the African cultures’ histories, ideas and beliefs. You have gained knowledge of a culture that differs from your own; you have experienced several aspects of this culture and hopefully have gained an appreciation for cultural groups outside of your own cultural identity. Now I will provide you with an opportunity to put your newly acquired knowledge in practice by employing your unique sense of creativity and writing abilities whose result will be, I am sure, enjoyment. You will create a short tale with an aetiological end under one of the following titles:

- Why the Cheetah’s Cheeks Are Stained
- Why the Bat Flies by Night
- How the Tortoise Became Bald
- How the Crocodile Got Its Skin
- How the Leopard Got His Claws
- How the Zebra Got his Stripes

Think about the tale’s plot, characters, events and resolution. A member of the group will be the storyteller.

References


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7 Chinua Achebe—“Bates College Commencement Address”, 27 May 1996.
Teaching and Learning Technology
Abstract

Information Communications Technology (ICT) has great potential for enhancing teaching and learning outcomes. The teacher’s use of technology determines how fully its potential can be realized. Among other factors, the teacher’s own education is an important indicator of how successfully ICT can be applied in the classroom. In recent years, Turkish educators have prioritized an enhanced use of ICT for instructional purposes while developing school-based and nationwide ICT infrastructures. This paper analyzes how technology, integrated with a new curriculum, has been applied to Turkish teacher training programs and primary education. This analysis is supplemented by data obtained from a questionnaire completed by primary school teachers and prospective teachers.

Keywords: ICT use, teacher education, learning and teaching

INTRODUCTION

The pedagogical use of ICT has been a priority in most countries during the last decade. However, there is considerable variation in its use from one country to another, and even between schools in the same country. Some governments have embedded ICT in the curriculum and demonstrate high levels of effective, appropriate ICT use to support and transform teaching and learning in most subject areas. The majority of schools in most countries, however, are in the early phase of ICT adoption and use (Balanskat, Blamire & Kefalla, 2006).

One of the most commonly cited reasons for using ICT in the classroom is to better prepare the current generation of students for a workplace where ICT, particularly computers, the Internet and related technologies, are becoming more and more ubiquitous. Technological literacy, or the ability to use ICT effectively and efficiently, is thus considered as providing a competitive edge in an increasingly globalized society. Digital age literacy (such as functional literacy, visual literacy, scientific literacy, technological literacy, information literacy), inventive thinking, higher-order thinking, effective communication and problem solving have been identified as 21st century skills by the United States Department of Labor (1999). Information Communications Technology’s potential for promoting the acquisition of these skills is tied to its use as a tool for raising educational quality, including its role in the shift towards a learner-centered environment.

The Use of ICT to Improve The Quality of Education

ICT can enhance the quality of education in several ways:

- by increasing learner motivation and engagement,
- by facilitating the acquisition of basic skills, and
- by enhancing teacher training.
It can also be accepted as a transformational tool which, when used appropriately, can help establish a learner-centered environment.

The correct use of ICT can catalyze the paradigmatic shift in both content and pedagogy that is at the heart of education reform in the 21st century (Bransford, 1999). If designed and implemented properly, ICT-supported education can expedite the acquisition of knowledge and skills that empower students for lifelong learning. Lifelong learning has gained importance in the 21st century. The phrase denotes a learning process that should be seriously addressed at any age from birth to death. We can conceive of lifelong learning as education and professional training that enables individuals to update their knowledge, skills and competencies as needed.

When used appropriately, ICT—especially computers and Internet technologies—enables new ways of teaching and learning rather than merely improving study techniques already employed by teachers and students. These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centered pedagogy—in its worst form characterized by memorization and rote learning—to one that is learner-centered.

ICT can support learning in a number of ways. It has the power to help students obtain, organize, manipulate, and display information. Using technology for meaningful activities also helps integrate a variety of disciplines that more closely resemble the activities that people undertake in the world beyond the classroom. Many changes will be necessary for schools to provide technology-supported activities for all students. Time, effort, and resources are necessary if students are to reach a certain level of technology use and transfer technological skills to their daily lives. However, for all this to happen teachers must be aware of ICT’s pedagogical potential and experienced in its use. The teacher’s role must evolve so she can help students learn in the best way according to their needs and support them when making choices about how and where they access new knowledge. Therefore, teachers should use the technology in appropriate ways. If they are not actively engaged with ICT in the teaching and learning process, ICT at schools will have little impact (Hepp et al., 2004). Therefore, the teaching profession becomes very important and the teacher’s role at this point is vital.

This process brings about learning independent of age, time and place. It provides for unlimited learning. The process is learner-centered rather than dependent on the teacher. All these developments necessitate a change in the education system and this has required that the Turkish Ministry of National Education (MoNE) take action to modify existing primary education programs and. Consequently, MoNE has developed a new curriculum. The Turkish Ministry of Education has made a substantial effort to change the curriculum for grades 1–8 curriculum for the sake of 21st century skills.

**Use of ICT in Primary Education in Turkey**

Parallel to the international trend of increasing importance of ICT in education, MoNE aims to integrate the Turkish education system with ICT via certain policies and developmental strategies in order to keep pace with the information age. The goal is for Turkey to become a society focused on information and technology. The use of ICT in teaching and learning will have little impact if teachers are not actively involved in all phases of the process (Hepp et al., 2004). However, teachers are required to decide how to make appropriate educational use of ICT in the classroom. In other words, teachers need to upgrade their skills and knowledge in the ICT field as well as in other subject fields. Teachers need training in several areas such as computer literacy and ICT classroom management. They must acquire an understanding of the relevance of ICT in education and its importance in teaching and learning.

To assure successful pedagogical use of ICT, pre- and inservice teacher education is very important. Inservice and pre-service teachers will have to acquire some working knowledge of ICT and considerable knowledge of how to use technology for a variety of instructional approaches. Students in teacher
training programs need opportunities to incorporate ICT in their studies. Thus, trainees need access to a variety of ICT tools with which they can experiment. Prospective teachers should be familiar with ICT and what it can provide. They also must develop a capacity to critically evaluate and discriminate what (technological) resource to use, and whether one should be used at all. They need to be able to understand conceptually, and in pedagogically appropriate ways, how, where and why to use computerized technologies. At this point, teacher training programs play a crucial as they equip and prepare teachers for confident, competent ICT use in the classroom.

Research on the use of ICT in different educational settings over the years invariably identifies the inability of teachers to understand why and exactly how they should use ICT to improve instruction as a barrier to success (Pelgrum, 2001; Snoeyink & Ertmer 2001; Yuen & Ma 2002). Unfortunately, most professional development in ICT is heavy on “teaching the tools” and light on “using the tools to teach.”

Considering this reality, every year the MoNE has been conducting several inservice training activities especially for the use of ICT at both the central and local levels.

**Inservice Training in Turkey**

Most professional development activities have been carried out in coordination with universities, governmental and non-governmental institutions. MoNE provides inservice training courses covering computer operation, Windows, Internet operation, Adobe Authorware, Macromedia DreamWeaver, web design, Adobe Premier, Adobe Photoshop, database, Microsoft PowerPoint, Microsoft Word, and Microsoft Excel in order to: a) expand computer and other technology assisted education practices; b) make use of computers in education, teaching, and management services) establish communication between central and provincial organizations and institutions; and d) demonstrate how to integrate ICT and the teaching and learning process (MoNE, 2001, 2004, 2005, 2006). In partnership with the schools, the government is concerned with the need for change and improvement in educational institutions for teachers.

**Pre-service Teacher Training**

In the 1998–1999 academic year, the Higher Education Council (HEC) began an effort to restructure teacher training programs in Turkey. Teacher training programs were redesigned and enriched with teaching methodology and teaching practice. New courses such as instructional planning, computer and instructional technology, and computer literacy were also included. Likewise a new department was established in education faculties. For instance, the Computer and Instructional Technology Teacher Training Department now aims to provide first IT coordinators and then, later, ICT-literate teachers for all state schools. The aim of these changes was mainly to increase the quality of teacher training programs. According to the new curriculum, the “Computer” and “Instructional Technology and Material Development” courses became compulsory in primary and secondary pre-service teacher education programs. The “Computer” course teaches basic computer skills and introduces teachers to several commonly used computer applications such as word processors, spreadsheets, databases, telecommunications, and programs for presentations. In the “Instructional Technology and Material Development” course, prospective teachers gain knowledge and skills in a variety of instructional technologies while and developing and evaluating technology-based instructional materials (e.g. spreadsheets, transparencies, slides, video, computer based materials) and various types of teaching materials through instructional technologies (HEC, 1998, 2004). While the computer course provides basic personal skills for prospective teachers, the Instructional Technology and Material Development course concentrates more on professional skills related to ICT. In other words, the computer course’s main focus has been on computer skills, e.g. word processing or information management. However, in the Instructional Technology and Material
Development course, priority is given to developing a pedagogy that integrates ICT, teaching, learning processes, organization of new materials, etc.

**METHOD**

This descriptive study intends to determine how technology in the new curriculum has been applied to the teaching and learning process in the primary education curriculum and teacher training programs.

We focus on answering three research questions:

1. What does the primary school curriculum suggest for ICT use in the learning and teaching process?
2. How do teachers use ICT in their teaching process?
3. What barriers impede ICT use in their teaching process?
4. What are prospective teachers’ opinions on using ICT in their learning process?
5. What barriers impede ICT use in their learning process?

**Study Group**

The study group was composed of 50 primary school teachers and 79 senior prospective students from Hacettepe University, Department of Primary Education.

**Data Collection Tool**

In order to find the necessary answers to the questions posed in this study, a survey was carried out among teachers and prospective teachers. ICT use inventories for teachers and prospective students were developed by researchers after literature search (Appendices 1 and 2). Moreover, the primary education curriculum was examined for suggestions on ICT use in the learning and teaching process.

**Data Analysis**

The data collected in this study were analyzed through descriptive statistics (frequencies and percentages).

**RESULTS**

In this part of the article, findings are presented relevant to questions posed in the study.

As mentioned before, MoNE modified existing primary education in 2005. Eight common skills have been determined for all courses included in the New Primary Education Curriculum. These skills are: *Critical thinking, creative thinking, communication, researching-questioning, problem solving, using information technologies, entrepreneurship and using Turkish language correctly and efficiently.*

The skills for using information technologies include those for using technology in searching, finding, processing, presenting and evaluating information (MoNE, 2005). In this scope, and aligned with the objectives, effective and efficient use of ICT increases in importance. Moreover, great importance has been given to using information technologies in courses requiring specific activities to be carried out. By focusing on learning, the emphasis falls on creating environments wherein education can be more lasting through the support of each developed technology. When new instruction programs are reviewed,
it is observed that they are enriched with activities and they are centered on students rather than on the teacher.

In the primary curriculum, ICT is an elective course usually offered one hour per week. As a literacy course, it teaches basic computer skills and introduces students to some commonly used computer applications such as word processors, paint, and communication tools. The MoNe has defined ICT objectives at the primary level. Computer literacy and the use of computers to solve problems are curricular priorities. The Turkish Ministry of National Education states the objectives of the ICT project as follows:

- Integrate ICT training at all levels of primary education, from first to eighth grade,
- Provide each student with access to ICT equipment and information sources,
- Empower the students with the competencies of accessing information, problem-solving, processing and disseminating information, and teach them how to use these skills in their everyday life,
- Encourage teachers to use ICT opportunities for developing curricula, self-improvement, student evaluation, lecture preparation, and in-class application,
- Enable school administrations to use ICT equipment for efficient administrative work,
- Equip the local educational boards with relevant ICT tools as part of a managerial information system.

There have been a number of parallel projects related to this integration and how to use ICT in Turkey’s educational system. Some of the projects are listed below:

- MoNE Project for Providing Access to the Internet: This project provides students with access, use, production and sharing information via e-learning. In cooperation with Turk Telkom Inc., fast, secure, and cheap Internet access was provided between February 2004 and the end of 2005. During that time, approximately 21,500 K-12 schools were provided with ADSL broadband Internet connection, and 85% of K-12 students enjoyed Internet connection in their schools. Work continues to improve this.
- Education for the Future (in cooperation with Intel): This project prepares teachers in computer literacy during a three-year period.
- Vocational Training through Distance Learning: Through the co-operation of MoNE and Sakarya University, this project aims to improve lifelong learning in accordance with the student and work life needs. It also provides professional training.
- Learning Centers: This project was launched by MoNE in order to provide access to ICT resources (computer, printer, Internet, etc.), peer support for using ICT, lifelong learning with some certificates programs, and face-to-face learning for open education students (Akturk, 2005).

Results show that the new primary education curriculum provides and supports ICT in the learning and teaching process and also includes administrative and technical supports. We summarized the process in Figure 1 (Cradler & Bridgforth, 1996).
Therefore, we examined how teachers, as implementers, use ICT in their teaching process with their inservice training and access to technology.

First, teachers in the study group were asked whether they benefited from ICT in their lessons or not, and all of them answered this question with “I do.” When they were asked from which ICT they benefited, they answered as below.

Table 1. ICT Use by Primary School Teachers

<table>
<thead>
<tr>
<th>Do you use ICT in your lessons?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>ICT use by teachers</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>Tools</td>
<td>50</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Computer</td>
<td>50</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Internet</td>
<td>39</td>
<td>78</td>
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<td></td>
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<td>Video</td>
<td>18</td>
<td>36</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Overhead projector</td>
<td>14</td>
<td>28</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Cassette recorder</td>
<td>2</td>
<td>4</td>
<td></td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Television</td>
<td>2</td>
<td>4</td>
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<td></td>
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<td>100</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>PowerPoint</td>
<td>34</td>
<td>68</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Instructional software</td>
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<td>32</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Documentary, Films, Experiment</td>
<td>7</td>
<td>14</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Electronic worksheet</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Books, printed material</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

When we examine Table 1 we can see that all of the teachers use a computer, 78% use Internet, 36% use video, and 28% use an overhead projector in their lessons. Primary indications about these tools’ use in lessons can be taken from the curricula. Sixty-eight per cent of teachers stated that they used PowerPoint; 32% stated that they used instructional software; 14% made use of documentaries, films and experiments; and 6% of them asserted that they used electronic worksheets. Considering the implemented curricula, ICT is mostly used for presenting the lesson’s content to students.
Senior students of the department of primary school teaching (prospective teachers) were asked the same questions so as to determine whether or not lecturers made use of ICT in their lessons. The answers are given in Table 2 below.

According to Table 2, 73% of the prospective teachers stated that they use ICT in their lessons; 6% stated that they did not use ICT. On the other hand, 20% stated that they use ICT in their lessons from time to time. Their chosen ICT tools do not seem different from those that teachers use. All the prospective teachers claimed to use computers in their lessons; 30% said they use Internet; and 21% affirmed using an overhead projector. Lecturers also make use of these ICTs mostly (68%) for PowerPoint presentations.

Table 2. ICT Use and ICT Used in the Learning and Teaching Process

<table>
<thead>
<tr>
<th>ICT use in learning and teaching process</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>ICT used in learning and teaching process</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>79</td>
<td>58</td>
<td>73</td>
<td>Tools</td>
<td>79</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>6</td>
<td></td>
<td>Computer</td>
<td>24</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Sometimes</td>
<td>16</td>
<td>22</td>
<td></td>
<td>Internet</td>
<td>79</td>
<td>21</td>
<td></td>
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<td>Video</td>
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<td>Overhead projector</td>
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<td>Television</td>
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<td>68</td>
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<td></td>
<td></td>
<td>CD/VCD/Tapes</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Simulations</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Another question addressed to teachers and prospective teachers queried the purposes for ICT use. Results are shown in Table 3 and Table 4.

According to Table 3, 56% of teachers stated that ICT helps them visualize the lesson, and 54% stated that they use it for data retention and motivation. The rate of teachers using them for preparing lesson plans, presentations, and worksheets is 38%; the rate of teachers using them for supporting activities and enriching the lesson is 36%; the rate of use for presenting (reciting) the lesson is 26%. These results reveal the amount of ICT use that supports lessons or presents lesson content. On the other hand, a smaller portion of teachers said that they used ICT for activities together with their students or for building information literacy skills. In this context, 14% of teachers used ICT in writing, drill and practice activities; 10% in written descriptions and dictation studies; another 10% in presentation of projects and performance based tasks; 6% for introducing information resources and websites; and 4% for equipping students with skills for accessing to and assessing information.
Table 3. Teachers’ Purposes for ICT Use

<table>
<thead>
<tr>
<th>Purpose of ICT use</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher Based Use for,</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visualization of the lesson</td>
<td>28</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Data Retention and motivation</td>
<td>27</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Preparing plans, presentations, worksheets</td>
<td>19</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Supporting activities, enriching the lesson, drawing attention</td>
<td>18</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Presenting the course, attracting attention</td>
<td>13</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Introductory activities</td>
<td>11</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Watching documentaries, films or experiments</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Serving more than one sense</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Using time more productively and increasing productivity</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Improving concentration</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Providing more enjoyable learning</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Stimulating curiosity and research ability</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Making more detailed research</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Providing a suitable learning environment according to students’ learning styles</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Evaluation tools</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Use ICT with Students and Equipped them with ICT skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drill and Practice activities</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Writing activities</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Presenting the projects and performance based tasks</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Introducing the information resources and web sites</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Accessing Internet in learning environment and access the information</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Equipping students with information access and evaluation skills (involving students in assessment decisions)</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Purpose of ICT use in the Learning and Teaching Process

<table>
<thead>
<tr>
<th>Purpose of ICT use in learning and teaching process for</th>
<th>N</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting the courses by visual materials</td>
<td>39</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Introducing courses</td>
<td>31</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Data retention via visualization of the course</td>
<td>27</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Watching movies/case studies</td>
<td>12</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Presentation of students’ works</td>
<td>11</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Microteaching</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 4, 49% of prospective teachers stated that ICT was implemented to visually support the lessons. Thirty-nine per cent used ICT for introducing lessons; 34% for ensuring the stability of knowledge and data retention; 31% for watching film or sample cases. As in the case of statements made by teachers, 14% of prospective teachers also stated that they used most ICT for presenting the students’ studies.

When the first four tables are examined together, the similarity between the answers of teachers and prospective teachers are remarkable. Results obtained from these tables could be evaluated according to *creativity and enjoyment*, we saw that, ICT was generally used for transferring information from teachers to students in both groups. We should think about how that style of ICT usage could support creativity and enjoyment.
To the question, “what do the new curricula suggest about using ICT?” answers from both groups are given in Table 5 and Table 6.

**Table 5. Teachers’ Answers to “What do new curricula suggest for using ICT in your class?”**

<table>
<thead>
<tr>
<th>It suggests to use ICT for supporting</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learning and teaching process with audiovisual materials</td>
<td>20</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>To access information from different resources (such as Internet, e-database) and to make presentation with using text, graphics and tables</td>
<td>50</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Students and teachers to use ICT (for CBE, using video etc.)</td>
<td>14</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>To create a student-centered and active learning environment, students to construct their knowledge structure</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>To equip students with ICT and information literacy skills</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Forty per cent of teachers stated that the new curricula suggested using ICT to support lessons visually and facilitate access to more detailed information. Twenty-two per cent of teachers said that the new curricula suggested using ICT for purposes such as finding information, planning, and sharing it. The new curricula definitely and clearly emphasize this point. On the other hand, the new curricula have defined ICT use as one of the basic skills with which the curricula must equip students. However, the rate of teachers aware of this and stating that “it suggests students’ using information technologies and development of students’ information literacy skills” is only 8%. The indefinite statement of a part of 28% of the teachers as “the new curricula suggest teachers and students use information & communication technologies” can be the indicator of lack of awareness.

**Table 6. Prospective Teachers’ Answers to “What does the new curriculum suggest for using ICT in your teaching and learning process?”**

<table>
<thead>
<tr>
<th>It suggests to use ICT for supporting</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>To use all ICT</td>
<td>25</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>To use internet and computers</td>
<td>7</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>To use ICT very often and encourage our students and guide them to use ICT</td>
<td>7</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>To get benefit from visual materials</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>To use video or PPT presentations for concretization of abstract concepts</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Use to conduct research</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Technological literacy</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>To use instructional software to help students for better learning</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>To use mass media correctly</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>I do not have any idea</td>
<td>17</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

When we examine Table 6, we see that 32% of prospective teachers said the new curricula suggest they use all ICTs, while 22% stated that they had no idea. In addition, 9% of the prospective teachers stated that the new curricula suggested encouraging students to use ICT, 4% that it suggested equipping students with technological literacy skills. It is understood that the prospective teachers have a lower awareness about the suggestions of new curricula for using ICT.

The answers given to the question, “Have you received any training in using ICT suggested in the new curricula?” are given in Table 7.
Table 7. Teachers’ Answers to “Do you ever join any in-service training on use of ICT suggested in the new curricula?” and “What was the content of in-service training courses you attended?”

<table>
<thead>
<tr>
<th>Do you ever join any inservice training in ICT use suggested by new curricula?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>What was the content of in-service training courses you attended?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
<td>44</td>
<td>88</td>
<td>Use of computers and internet</td>
<td>16</td>
<td>16</td>
<td>36</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>Use of Office Programs (such as word, Excel, PowerPoint)</td>
<td>15</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Using Word, Excel, PowerPoint in preparing instructional materials</td>
<td>6</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Preparing PowerPoint presentation, internet search techniques</td>
<td>5</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use of ICT</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Eighty-eight per cent of teachers gave positive answers to the question while 6% stated that they had never received training in ICT. Considering the training received, 36% of teachers stated that they had received training in computer and Internet use; 34% stated that they had been trained to use office programs; and 14% that they had received training in preparing materials using Office Programs. It is understood that entire trainings are for equipping teachers with ICT skills. The idea of how these technologies can be used in teaching is not adequately studied.

These questions were addressed to the prospective teachers as “Do you think you are equipped with the required skills to use ICT suggested in the new curricula when you become a teacher? And if yes, in which lessons are you equipped with these skills?” Answers are presented in Table 8.

Table 8. Prospective Teachers’ Answers to “Do you think you are equipped with basic skills to use ICT suggested in new curricula?”

<table>
<thead>
<tr>
<th>Do you think you are equipped with basic skills to use ICT suggested in new curricula?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>if you answer yes, in which courses are you equipped with basic skills?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>34</td>
<td>34</td>
<td>43</td>
<td>Science and Technology Teaching</td>
<td>16</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>In many courses</td>
<td>15</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td>Moderately</td>
<td>14</td>
<td>14</td>
<td>18</td>
<td>Social Studies Teaching</td>
<td>10</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>We are learning how to use ICT ourselves</td>
<td>11</td>
<td>11</td>
<td>14</td>
<td>Computer</td>
<td>8</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Instructional technology and material development</td>
<td>8</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Generally teaching method courses</td>
<td>7</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mathematics Teaching</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

According to Table 8, 43% of prospective teachers thought that they were equipped with the required skills, and 18% that they were partially equipped with these skills. Twenty-five per cent of prospective teachers stated that they were not equipped with the required skills during their own training process, and 14% stated that they acquired these skills themselves. When they were asked for which lessons they were equipped with these skills, 33% of prospective teachers stated that they were equipped with these skills for the Science and Technology Teaching Lesson, and 21% claimed competence in the Social Studies Teaching lesson. The rate of prospective teachers stating that they were equipped with the required skills to use ICT in Computer lessons is 17%. The rate of prospective teachers stating that they learned these skills in their Teaching Technology and Material Development lesson is again 17%. A significant part of the prospective teachers gave more ambiguous answers such as “in many lessons” (31%) and “generally in teaching lessons” (15%).
As mentioned before, “Computer” and “Instructional Technology and Material Development” courses are compulsory in pre-service teacher education programs. And aimed to provide basic computer skills and professional skills related to ICT. However, results showed that teaching method courses were equipped students with ICT integration skills more than these two courses. Results also showed that to teach only ICT skill is not adequate, ICT integration into subject area is more effective.

Table 9. Teachers’ Answers to “Do you have any difficulties to reach ICT?”

<table>
<thead>
<tr>
<th>Do you have any difficulties to reach ICT?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>Do you have any difficulties to reach ICT in your department?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
<td>3</td>
<td>6</td>
<td>Yes</td>
<td>79</td>
<td>39</td>
<td>49</td>
</tr>
<tr>
<td>No</td>
<td>37</td>
<td>74</td>
<td>No</td>
<td>Sometimes</td>
<td>28</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Moderately</td>
<td>10</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When teachers were asked whether they had difficulty in accessing the ICT suggested in the curriculum (Table 9), only 6% of teachers said they did. Twenty per cent of teachers claimed difficulty sometimes, and 74% of them stated that they had no difficulty.

When prospective teachers were asked whether they had difficulty in accessing the ICTs suggested in the curriculum, 49% of the prospective teachers stated that they had difficulties. Fifteen per cent responded that they had difficulties sometimes, and 35% that they had no difficulty.

Teachers and prospective teachers were asked about what kind of difficulties they encountered. Their answers are given in Table 10.

Table 10. Teachers’ and Prospective Teachers’ answers to “What kind of access difficulties do you have?”

<table>
<thead>
<tr>
<th>What kind of access difficulties do you have?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>What kind of difficulties do you have to reach ICT in your department?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of computers and projectors</td>
<td>13</td>
<td>8</td>
<td>62</td>
<td>Lack of computers</td>
<td>18</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Membership charges for website unreliability</td>
<td>2</td>
<td>15</td>
<td></td>
<td>Computer labs are usually closed.</td>
<td>20</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>I don’t have enough information.</td>
<td>2</td>
<td>15</td>
<td></td>
<td>Tools are usually out of order</td>
<td>9</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Lack of activity CDs suitable for the new curriculum</td>
<td>1</td>
<td>8</td>
<td></td>
<td>We are not allowed to use ICT</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

Sixty-two per cent of teachers having access difficulties stated insufficient number of computers and projectors, while 15% mentioned problems such as the Internet’s unreliability as a source and membership charges of websites. Fifteen per cent of teachers said that they had not enough information about it.

Thirty-five per cent of prospective teachers having access difficulties stated the problem of insufficient number of computers, while 39% claimed that they could not gain access because the computer laboratories were usually closed. Eighteen per cent stated that the tools were usually out of service, and 14% that they were not allowed to use ICT. At this point, it can be understood that the access difficulties of prospective teachers are greater in number and more interesting than those of teachers. The prospective teachers can not use ICTs for reasons such as closed laboratories, defective tools, or restrictions imposed based on the grounds that the tools will break down. We noticed that none of the prospective teachers mentioned about lack of information, whereas, they claimed that they were not equipped with these skills (see Table 8). They usually claimed outer factors.
Table 11. Teachers’ and Prospective Teachers’ Answers to “How do you overcome these difficulties?”

<table>
<thead>
<tr>
<th>How do you overcome these difficulties?</th>
<th>n</th>
<th>f</th>
<th>%</th>
<th>How do you overcome these difficulties?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask help from friends</td>
<td>13</td>
<td>10</td>
<td>77</td>
<td>I have my own facilities</td>
<td>18</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>I try to prepare something with my own</td>
<td>3</td>
<td>23</td>
<td></td>
<td>I cannot do anything</td>
<td>51</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I am trying to use ICT in other departments’ facilities</td>
<td>8</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I do not use ICT</td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

While teachers mostly prefer to assist their friends (77%), prospective teachers either create their own possibilities (35%) or prefer to do nothing (35%) and give up on using ICT (14%). The ratio of those trying to benefit from possibilities in other departments is only 16%. Approaches of teachers and prospective teachers for overcoming difficulties they experience in access to ICT seem so different from each other (see Table 11).

The approaches adopted by teachers and prospective teachers in order to overcome these difficulties in accessing ICT seem to be significantly different from one another. While teachers mostly prefer asking their colleagues for help (77%), prospective teachers mostly either create their own possibilities (35%) or prefer doing nothing (35%) and giving up using ICT (14%). The rate of prospective teachers trying to benefit from other departments’ facilities is only 16%.

When the relations of teachers and prospective teachers with ICT are considered as a whole, we observe that they show significant similarities. This leads to a strong understanding as prospective teachers will present the teaching behaviors they are modeling. Data strengthening this understanding are the answers obtained from prospective teachers when they were asked about how they would use ICT when they became teachers. When these answers given in Table 12 are examined, we see that their answers are very close to the forms of use they observe.

Table 12. Prospective Teachers’ Answers to “How do you think you will use ICT in your learning and teaching process?”

<table>
<thead>
<tr>
<th>How do you think you will use ICT in your learning and teaching process?</th>
<th>n</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I can have ICT, I can use it for my teaching, activities and research</td>
<td>22</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>I am going to use ICT for more effective teaching</td>
<td>8</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>I am going to use the computer and overhead projector in my teaching</td>
<td>50</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>I am going to use ICT, If I can develop it myself</td>
<td>6</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>I am going to use ICT to get students’ attention</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>I am going to use ICT to prepare interesting presentations and video records</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Changes in curricula are absolutely required for changing teaching systems; however, they cannot be expected to be more efficient than individual experiences.

Conclusion and Discussion

Critical thinking, creative thinking, communication, problem solving, researching, decision taking, using information technologies, entrepreneurship, scientific process skills are all skills we define as basic skills expected from an individual and which we discuss as information literacy. ICT must enter the teaching and learning process as a cognitive tool for the purpose of developing these skills (Jonassen, 2000). These skills are overemphasized and predicted in Turkey that curricula having begun to be implemented in all levels within the scope of K-12 as from 2005–2006 education year put utmost importance and set down to be acquired by individuals.
In this sense it seems that curricula have already determined how communication technologies take place within the learning and teaching process. However, we all know that realizing the change is not possible by changing a system’s programs. Particularly, changes in education systems are closely related to teachers’ evolution (Fullan, 1991). Teachers’ development, on the other hand, starts with the processes of pre-service teacher training and continues with inservice teacher training processes. Thus, in accordance with the curricula, teacher training should be reconsidered so as to cover both pre-service and inservice processes. We have examined the consequences of whether such educational arrangements are made or not and the way these arrangements reflect on learning-teaching processes. Our analysis leads to the conclusions below.

First the teachers were asked if they used ICT and for what purposes. According to their replies, all teachers use ICT. Computer (100%), Internet (78%), and video (36%) stand out as the most widely-used instruments. Totally 68% of the teachers prefer using PowerPoint presentations; 32% prefer instructional software; 56% make use of ICT to add a visual component to lessons; 54% use it to ensure the stability of knowledge; 38% prepare plans, presentations, study papers; 36% use ICT to support, enrich and draw attention to the lesson; and 26% present the lesson with technological aid.

The same question was addressed to the prospective teachers regarding whether lecturers used ICT or not and for what purposes. According to the results, most of the lecturers (73%) make use of ICT. Again, computer (100%), Internet (30%), and video (30%) stand out as the most widely-used instruments. Totally 68% of the lecturers prefer using PowerPoint presentations; ICT is used by 49% to support the lesson visually; 39% introduce the lesson technologically; 34% use it to ensure the stability of knowledge; and 31% show films or sample cases using video equipment.

Lecturers use ICT at a lower rate than teachers, and their intended use purposes are significantly similar to those of teachers. At least this is the case under the sense of prospective teachers.

Teachers and lecturers make use of ICT mostly by the practice of students reading content on the computer monitor, watching, and answering questions about the subject. This technique approximates learning from a teacher (Jonassen, 2000). And from this side it is not adequately qualified to meet the requirements of new teaching programme. The use pattern of lecturers reveals a strong possibility that the current situation will go on because this is the pattern that prospective teachers are modelling.

At this point we examined whether teachers and prospective teachers are aware of the suggestions given for using ICT in the new curricula. Forty per cent of teachers affirmed that the new curricula suggested supporting the teaching processes with audio and visual materials; 22% said that they suggested accessing information through different sources, arranging and presenting information with different formats; 28% said that they suggested teachers and students use ICT. When the answers of prospective teachers are evaluated, we register that 32% claim that the new curricula suggest all kinds of ICT be used, and 9% suggest using Internet and computers. A substantial number of prospective teachers, fully 22%, have no idea about it. The results obtained point out that the awareness of both teachers and prospective teachers are not at the desired level. Particularly the answers of prospective teachers are of more importance because of the continuity of the problem and because it brings to mind the possibility that the lecturers’ awareness is also at low levels.

Have teachers and prospective teachers been trained for the requirements of new teaching programs or have measures meant to orient them in related skills been developed? When answers relating to this question are analyzed, the following results emerge.

Have teachers and prospective teachers been trained in accordance with new curricular requirements, or have measures been taken so as to ensure that they acquire the related skills? When the answers relevant to this question are examined, the following results appear.
Thirty-six per cent of teachers received computer and Internet education. Thirty-four per cent received training in the use of office programs. Another 14% was trained to prepare material with office programs. There is no dimension in these trainings as including these information & communication technologies in teaching process as a cognitive instrument. The prospective teachers, on the other hand, stated that they acquired ICT skills when studying lessons such as Science and Technology Teaching (33%), Social Sciences Teaching (21%), computer lessons (17%), and teaching technology and material developing lesson (17%). Especially the skills acquired in teaching lessons are thought to better serve the intended use.

Efficient use of ICT is certainly as much related to difficult access to the relevant instruments as to the training received. In accordance with this fact, the teachers and prospective teachers were asked about their access difficulties. Only 6% of teachers stated that they had access difficulties, while 49% of prospective teachers said they had access difficulties. We see here that prospective teachers experience more negative conditions.

There is no doubt about the desire to have ICT take a place in learning—teaching processes as a cognitive tool. The first step has been taken by changing the curriculum. However, the implementers of the system do not yet seem ready for this. For this reason pre-service and inservice teacher training topics are required, and measures that are enriched and differentiated in equipment use and methodology should be developed. Otherwise, it seems likely that there will not be an increase in the number of answers such as “I think that I will be able to use ICT when I become a teacher” (66%) and “I will use ICT to support my teaching activities and in my research” (44%).

References
Trends and Initiatives in Technology

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Abstract

The aim of this paper is to share current trends and initiatives in Design and Technology in the English curriculum with international partners as a starting point for discussion on the direction of travel in this area in relation to the ETEN Thematic Interest Group: Technology. Our rationale for this pilot was to collect starting point data for collaborative work considering the developing nature and role of Design and Technology across Europe from a variety of perspectives. Our ETEN Technology TIG has attracted a diverse range of participants with very different personal constructions of technology, a term which has different implications/definitions across Europe- clarification of meanings would be of value to the group and new participants. The pilot included an interactive workshop demonstrating an example of what is meant by Technology: D&T in UK followed by discussion and the completion of a questionnaire. This format was intended to stimulate exploration of a common definition of D&T and an opportunity to identify differences. Each activity was planned to inform the following in order that the written data collected was a result of activity and discussion. It was found that within the group there was not a common construction of ‘Technology’. This finding worked as a catalyst for further collaborative work in this field with ETEN colleagues in the coming academic year to inform further ETEN TIG meetings.

Introduction

Design and Technology Education in England currently relates to an understanding of the relationship between capability and awareness, acknowledging the contribution that it makes to citizenship education (Grownney, 2005). The two main strands are capability; the design process, the development of procedural understanding, needs analysis and planning, and awareness; exploring products, addressing conceptual understanding, properties of materials, processes and costs etc. Permeating these strands is the attitudinal aspect which deals with value judgements, environmental issues and implications of design ideas in the 21st century (Davies and Howe, 2003, Goldsmidt, and Tatsa 2005) and the requirement to respond to emerging needs and issues innovatively (Davies, 1999). A real world example of this would be the growth of awareness of the importance of sustainable resources, green manufacturing techniques and environmental impact of the products leading to eco-design (Goggin & Lawler, 1998).

The consumer, producer and the environment are to be considered in the children’s work thus creating a social, cultural, moral and environmental awareness (Siraj-Blatchford & Patel, 1998 & Howe, Davies & Ritchie, 2001). Other relevant skills include information processing, reasoning, enquiry, observation, and evaluation, with problem-solving and creative thinking being at the heart of D&T (Baxter, 1995). Primary aged children in England (5–11 year olds) begin to engage with these aspects of design and technology through activities outlined in the National Curriculum and materials provided by the Qualifications Curriculum and Assessment (QCA, 1998).

This context informed the workshop, discussions and questionnaire hence it was decided not to collect data from the UK as the researchers were the only representatives and their perspective was clearly demonstrated in the workshop and questionnaire construction.
Methodology

Our rationale for this pilot was to collect starting point data for collaborative work considering the developing nature and role of Design and Technology across Europe from a variety of perspectives. Our ETEN technology TIG has often been a surprise to those who attend for the first time as technology has different implications/definitions across Europe. Existing members felt that clarification of meanings would be of value to the group and new participants in future.

The pilot included an interactive workshop demonstrating an example of what is meant by Technology: D&T in UK followed by discussion and the completion of a questionnaire. This format was intended to stimulate exploration of a common definition of D&T and an opportunity to identify differences. Each activity was planned to inform the following in order that the written data collected was a result of activity and discussion. The objective was to use Patton’s “paradigm of choices” that seeks “methodological appropriateness as a primary criterion for judging methodological quality” (1990, p.39) allowing for “situational responsiveness” that use of one paradigm would not. Combining the means outlined above was intended to provide data that was stronger than using one tool in isolation on the principle that qualitative and quantitative research can be effectively combined in the same research project (http://scholar.lib.vt.edu/ejournals/JTE/v9n1/hoepfl.html, 26/03/08). Triangulation was used to synthesize multiple forms of data from the single group sample. This approach to triangulation sought to examine information collected by different methods to reduce the impact of potential biases that were inevitable in this small scale, single study (http://www.igh.org/triangulation/, 25/03/08).

The workshop

While a workshop does not form part of the 6 accepted modes of information gathering (http://www.philseflsupport.com/questionnaires.htm, 29/03/08) it was intended to provide a concrete example of current practice in our quest to co-construct meaning with regard to D&T. It was felt that an interactive, practical workshop would reduce opportunities for misinterpretation that have arisen previously. Learning through doing was chosen for pedagogical reasons. The aim of the workshop was to involve participants in the type of activities that English primary children engage with in D.&T. It was intended that through experiential learning conceptual meanings could be explored and joint understanding co-constructed (http://eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true& &ERICExtSearch_ SearchValue_0=ED121223&ERICExtSearch_SearchType_0=no&accno=ED121223, 20/03/08).

Questionnaire

This was intended to collect information that was informed by the workshop and discussion, both of which illuminated understanding of this third measure. This also captured a summative position from all participants. It was felt that a questionnaire would be appropriate within this mixed methodological study- to extend and quantify the findings of this initial exploratory phase (http://bmj.bmjjournals.com/cgi/content/full/328/7451/1312, 29/03/08). Also it would serve as an inductive method with the aim of formulating new co-constructions of meaning, where some open-ended questions were used to ‘explore a substantive area’ (Gill & Johnson 2002).

A disadvantage of questionnaires was felt to be their inability to probe responses. They allow little flexibility to the respondent: questionnaires often lose the opportunity for respondents to qualify their answers. Space was allowed for comments to combat this problem as it was felt that they may provide insightful information that would have otherwise been lost. (http://www.philseflsupport.com/questionnaires.htm, 29/03/08)
Time was a further limitation, it was hoped that the questionnaire would provide a swift means of collecting focussed data. Many languages were spoken among the sample group but as verbal communication and papers were to be presented in English it was felt appropriate to use English for this method too.

**Discussion**

The opportunity to talk directly to other practitioners from across Europe was employed as a further means of reducing misunderstanding and to allow for free flow of ideas, questions and answers. Discussion was used as a means to gather information that was as recent and relevant as possible that might not be captured by the questionnaire. Clearly, while it was intended that the discussions would be valuable, it must be recognised that the information has questionable validity because it is highly subjective and might not be representative of the population. (http://www.philseflsupport.com/questionnaires.htm, www.researchmethodsarena.com/forum/forum_posts.asp?TID=77). Similarly our ‘TIG’ group formed a small focus group to explore people’s ideas and attitudes and once more the disadvantage was that the sample was small and may not be representative of the population in general. Equipment was provided to capture the discussions: a video recorder was set up in the presentation room in order to record the fast flow of exchange of thoughts and ideas. This was to be transcribed later.

**Results and Findings**

Our original questionnaire was designed in order to ascertain what the current trends were in Technology across a number of European countries and the significance placed on the subject.

Figure 1 reveals the responses from participants in 3 countries, as to whether D & T is part of their country’s educational curriculum.

![Figure 1. Number of countries that incorporate Technology as part of their educational curriculum](data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAABfAAAAA2CAYAAAC0Xq0SAAAABGdBTUEAAK/INw5tP3AAAADUlEQVR42mP8/A7BYOCxgkWYiOiJ+ygI7bWcAAAAASUVORK5CYII=
)

The subject of Technology is a statutory requirement in all countries participating in the survey. In Turkey it appeared that the requirement to teach Technology is initiated from the age of 9 years; Sweden the subject is taught from the age of 6 to 16 similarly in Holland from age 4–12 years. Nonetheless, the clarifying remarks that accompanied this question gave rise to a surprising insight related to what each country regards as Technology and the name given to the subject.

<table>
<thead>
<tr>
<th>Country</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>“We call it Science and Technology.”</td>
</tr>
<tr>
<td></td>
<td>“In Holland we call it Technology or Science and Technology.”</td>
</tr>
<tr>
<td>Sweden</td>
<td>“Yes, Technology is from 6 years old until 16.”</td>
</tr>
</tbody>
</table>

The UK’s chosen terminology is ‘Design and Technology’; The Netherlands ‘Science and Technology’ and in Sweden, it is called ‘Technology’. It was not apparent whether Turkey identified it as something other than Technology. When asked if there were any education initiatives for D&T education all 3 countries stated that there were, but gave no further examples apart from The Netherlands who stated...
that in Science and Technology there were ‘a lot of projects.’ We subsequently focussed on the importance society, teachers, parents and children placed on the subject of Technology.

Figure 2 demonstrates the value that Society places on Technology in the Netherlands, Sweden and Turkey. The majority of nations placed importance on Technology within educational contexts.

![Figure 2. Level of significance placed on Technology by Society in 3 European countries.](chart)

75% of participants from the countries surveyed believed that Society placed importance on the subject of Technology. The elements that were regarded as important by society in the Netherlands were:

- ‘The learning element.’
- ‘Economy.’
- ‘Jobs in technology.’
- ‘Gives us more time and money to invest in Technology.’

In Sweden the influencing factors were

- ‘The companies want more technological employees.’
- ‘Innovations and systems.’

Conversely in Turkey, although Technology was regarded by Society as reasonably important the reasons given for this significance were due to ‘creativity and enjoyment.’ The contribution that Technology played to national prosperity was not alluded to, in order to develop financial and economical viability of the nation.

In Figure 3 the teacher’s perspectives are considered in relation to the importance placed on Technology.
These results proved interesting with 62.6% of teachers valuing the place of technology in the curriculum. The perceived perception of teachers in Turkey was that they had higher regard for the teaching of Technology than society or the teachers in Sweden. However one needs to consider the reasons surrounding these viewpoints and explore what elements teachers consider most important. One response from the Netherlands cited that teachers...

‘… are afraid of it [technology] because it’s been defined as obligatory since 1998 to implant [technology] in the curriculum.’

This stance is seen not just as a dilemma for educators in Netherlands but similar issues surround the teaching of Technology within the United Kingdom, with teachers being reluctant to deliver the subject often due to poor subject knowledge and a lack of confidence.

6 out of 8 (75%) teacher educator’s believed that the parent’s viewed technology as being significant in their child’s education.

6 out of 8 (75%) teacher educator’s believed that the parent’s viewed technology as being significant in their child’s education.
They believed that parents considered the bigger picture related to career pathways for their off-spring. However some viewed a career in a technological discipline as second-rate.

Netherlands:
‘Work in the future.’
‘Technology is dirty and not well paid.’
‘They are interested in professional career of their children.’

Sweden:
‘Techincs in society.’
‘They don’t know what they are supposed to expect.’

62.5% of teacher educators believed that children regarded Technology as important in their education (Figure 5). The high level of importance of Technology brought to bear by the children in Sweden was unanimous with both teacher educators perceiving that children held Technology as significant.

![Figure 5. Level of significance placed on Technology by Children](image)

This sentiment was clarified when considering the main focus of Technology education in Sweden.

‘Hands on, problem solving.’

In the Netherlands the children regarded the most significant element was related to

‘Challenge.’

Whilst in Turkey, the children regard the enjoyment factor they experience when participating in Technology as the most important element of the subject.

‘Creativity and play.’
‘Enjoyment.’

The elements considered as important by the teacher educators in Turkey for parents and teachers were all related to creativity and enjoyment. However teachers also valued the

‘…application of some scientific principles.’

suggesting that perhaps in the Turkish Technology curriculum Science was also a feature.
When asked to consider if Technology was central to the various countries curriculum (Figure 6) it was apparent that there were conflicting views. 62.5% felt that Technology was central however the Netherlands perspective was interesting with 50% of the teacher educators stating that Technology was not central to their curriculum and 50% believing that it was.

![Is Technology central to the curriculum?](image)

**Figure 6.** The place of Technology within the school Curriculum

Whilst analysing the data it became apparent that although Turkey has an obligation to teach Technology to children from the age of 9 years, it was clear that various stakeholders within their country did not have such high regard for its incorporation into an educational curriculum as other European countries. However both participants felt that Technology was central to their countries curriculum.

The amount of time allocated to teaching Technology within schools each week varied in each country. There was no evidence to suggest that there was any statutory requirement as is the case in the UK although Turkey appeared to have 4 hours of Technology per week. However in Sweden it depended on which school the children were in.

- ‘It is different from school to school.’
- ‘45 minutes.’

In Turkey there are no current themes for Technology whilst in the Netherlands there is obviously a significant thrust in delivering Technology in Primary schools. The Swedish themes included

- ‘Bridges, cars, outdoors and science centres.’

The teacher educators were asked to consider the attitudes of both teachers and learners in relation to Technology in their country. (Figure 7)
None of the teacher educators felt that teacher’s attitudes were entirely positive about Technology furthermore none believed that attitudes were at the opposite end of the spectrum with completely negative attitudes exhibited. Most countries felt that teacher’s were reasonably positive or above (75%). 2 responses from Netherlands suggested that teachers were verging on negative attitudes towards Technology. One comment made from the Netherlands reflected a lack of confidence towards the subject stating ‘… they [teachers] are careful and afraid to give lessons in technology.’

In addition to this comment Sweden cited the teachers’ understanding of what constitutes Technology.

‘When they understand what it is about.’

When considering pupils’ attitudes (Figure 8), the spread between quartiles were greater. However teacher educators believed that children had mostly positive attitudes toward Technology. Once more Sweden regarded and ranked children’s attitudes highly positive, exceeding the other representatives’ beliefs of children’s attitudes from Turkey and the Netherlands.
75% of the teacher educators consulted believed that the children within their country had an above satisfactory attitude to Technology. In the Netherlands however the perception was that children did not have a particularly positive attitude to Technology.

When discussing what occurs in Technology lessons across Europe, some recurrent themes and strands occurred.

**Turkey A:** “We develop some interdisciplinary projects.”

**Turkey B:** “Yes it goes by project based activities. One of the principals of Primary Technology curriculum is multidisciplinary activities, so in Technology lessons, we can see multidisciplinary project activities.”

**Netherland A:** “We also have a cross curriculum approach to Technology and all the other disciplines. There are cross curriculum days within Technology classrooms”

**Turkey A:** “Science principles, especially maths and physics are applied within Technology too.”

The common theme across Sweden and the Netherlands was associated to problem solving.

**Sweden A:** “A problem is presented by the children or teacher. Children try to find out the best way to solve the problem by the internet, books, teacher lessons, friends or out in the society.”

**Netherlands A:** “We too have problem solving as a focus for Technology lessons. Also design, making and using which features, with children being encouraged to research technical things. This is instrumental in their learning.”

**Sweden B:** “In our country it is very much about curiosity and creativity first then knowledge. Hands on, on minds on!”

**Netherlands B:** “However we first have the mission regarding how to change the negative attitude acknowledged of Technology. We can do this by showing that Technology is fun and reachable for all. We try to make students enthusiastic and give them highlights and many successful experiences.”

It is apparent that there is a consensus that Technology is a multidisciplinary subject that incorporates many aspects of the curriculum, not just Design or Science. However in some countries a reluctance to teach Technology is apparent due to a negative attitude towards the discipline. Where is this seed sown?

**Discussion of findings**

It was found that as an instrument developed in a different national and cultural context the questionnaire did not provide a valid measure in the group studied ([http://bmj.bmjjournals.com/cgi/content/full/328/7451/1312](http://bmj.bmjjournals.com/cgi/content/full/328/7451/1312), 30/05/08).

Part of the questionnaire was intended to employ closed ended design to enable data quickly to be gathered quickly, however because the range of possible answers was set by the researchers not respondents, and the richness of potential responses was lower. Closed ended items caused frustration because not all potential answers were considered and the questions were not clear and unambiguous given the range of languages of the respondents.
The space provided to elaborate was more successful in providing participants with opportunities for creativity and free expression. Responses here captured feelings and ideas that could not be anticipated by set questions alone. While participants had the freedom to write as much or as little as they wished they commented that language and time proved to be barriers to their length of response.

Other measures were employed which, when triangulated, functioned in a complementary fashion (see table below). The demonstration/workshop provided a concrete example of meaning which proved useful in minimising misunderstanding as others have found (Moeser cited in http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&&ERICExtSearch_SearchValue_0=EJ112724&ERICExtSearch_SearchType_0=no&accno=EJ112724). The workshop element engaged participants in actual designing and making activities used in the UK with primary children: this was also very effective in stimulating discussion.

Table 1. www.researchmethodsarena.com/forum/forum_posts.asp?TID=77

<table>
<thead>
<tr>
<th>Broad area of research</th>
<th>Example of research questions</th>
<th>Why is a questionnaire NOT the most appropriate method?</th>
<th>What method(s) should be used instead?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared meanings in 'special interest' groups</td>
<td>What are the unexplored meanings of 'Technology' in our TIG</td>
<td>A questionnaire is likely to reflect the preconceptions of researchers (e.g. it may take a single national perspective as its starting point), and fail to tap into other important areas.</td>
<td>Range of exploratory qualitative methods designed to build up a 'rich picture' of the problem—e.g. discussion and demonstration</td>
</tr>
</tbody>
</table>

The discussion yielded rich and varied perspectives but the pace of the proceedings meant these were difficult to capture. Many discussions roamed through various languages as they gathered in depth and complexity and time was limited for full translation of all the thoughts explored and expressed. It was intended to capture this transient data in the form of video but the logistics of presenting, translating and filming proved to be unmanageable. Additionally the workshop moved outside to exploit the environs of the University and enrich the participants’ experience rendering video recording impractical with the equipment provided.

The findings highlighted aspects surrounding the pedagogy of Technology and the construction of meaning of what Technology constitutes. Agreement could not be made in the TIG about what the Technology TIG should be referred to in order to prevent misconceptions. New comers to ETEN often associate the Technology TIG with Information Communication Technology, computers! However it was clear from the discussion, that the cross curricular and holistic approach to Technology was evident in all participating countries. This holistic approach is the essence of an effective Technology curriculum pedagogy (Seemann, 2003; Kipperman & Saunders, 2007) however a common identity for the Technology TIG is still required. According to Keirl (2007) the absence of ‘design’ in the name is problematic, nonetheless the Netherlands refer to the subject as Science and Technology whilst Sweden and Turkey purely state, Technology. So how do we overcome these language barriers that have developed between our countries and their differing curricula in order to have a mutual understanding of Technology education?

Another dimension considered in the questionnaire and through discussion was the central nature of Technology in the curriculum. All children within the various countries surveyed had a statutory entitlement to Technology however there were varying levels of importance placed on the subject. Kimbell and Perry (2001) elude that The UK apparently was the first nation to establish a statutory entitlement for children from 5–16 and this model has informed curriculum development and classroom practice throughout many places in the world. Although the UK may have initiated a ‘design and technology’ curriculum, the emphasis is very much on English and Mathematics. Curriculum development within the UK is under review at present and schools are being charged with developing a ‘creative’ or ‘world class’ curriculum where a more multifaceted, child-led and holistic approach is being sought (http://www.qca.org.uk). Likewise Seeman (2003) when attempting to depart from a focus on English and
Mathematics in the curriculum, constructed the term ‘technacy’ placing magnitude on redressing the balance and attention given to these subjects. Conversely, Petrina (2000) proposes that Design and Technology should become a cultural study, far removed from the practical ‘hands on’ approach identified in the study. In Turkey there was a unanimous opinion that Technology was central to their curriculum however society and other stakeholders did not hold Technology in such high regard and the main reason for this central role of Technology in the curriculum was due to ‘creativity and enjoyment’ rather than the prosperity of the nation.

Little information was unearthed related to the educational initiatives in the field of Technology with reference being made to a number of topics or the themes covered whilst delivering a Technology curriculum. Pavlova’s (2006) recent research related to Technology, social change and the holistic nature of design and technology projects indicate that a subject such as Technology may collapse (Layton, 1995) beneath the influence of idealistic responsibilities being placed upon it.

A significant finding was the level of confidence that teachers’ had connected to their pedagogy of Technology. Although the levels were satisfactory overall, it was perturbing that teachers felt a level of anxiousness about teaching the subject. This may be due to the relatively recent requirement that Technology form part of the countries curriculum or due to other factors not explored in this work and the need for further exploration in the collaborative project in Turkey, 2008.

Conclusion

It was felt that the data lacked sufficient depth due to lack of time to fully exploit each of the methods used. The range of constructions of the meaning of technology was great and the differences multiple, complex and sometimes subtle. Participants felt that this was an area they wished to explore further in a similar vein. It was agreed to work with each other and students, demonstrating each participant’s perspective of Technology. This work will take place before the next ETEN conference and will be hosted by our Turkish colleagues. The conference will then be used to work on a collaborative paper to fully explore and discuss the constructions of Technology that have only been touched upon here.

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