The Proceedings of the 19th Annual Conference

of the European Teacher Education Network

ETEN

EDITORS
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European Teacher Education Network

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Preface

The 19th annual ETEN Conference was hosted by EGE University, Izmir, Turkey in April 2009. The theme of the conference was *Bridging Cultures through Education* which was considered and discussed from complementary viewpoints in a marvellous conference atmosphere.

It is our pleasure to notify that ETEN is growing all the time. Today, after nearly twenty years, the network has over 50 member institutions from Europe and North America representing teacher education and social educator training institutions. The most recent members of ETEN are University College of Antwerp (Belgium) and Azerbaijan State Pedagogical Univeristy (Azerbaijan). We are happy to welcome our new members to the network.

ETEN's *Conference Proceedings* have become a regular feature of the organisation from the 2001 conference at the University of Greenwich. During the years, the scientific quality, the innovativeness of the papers as well as the fresh viewpoints presented in them has become more and more visible.

This 19th conference proceedings publication of the network is based on papers that were discussed in the TIG-sessions at the ETEN Conference at Izmir. These papers introduce research studies, document professional practices and development programs and take stands on educational policy issues. The papers included in this publication represent the following Thematic Interest Groups (TIGs):

1. Educational Technology
2. Internationalization
3. Mathematics Education
4. Myths and Fairy Tales
5. Reflection
6. Special Needs

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*.

We are really proud of ETEN publications; because of their rich and diverse themes as well as practical and scientific importance. We would like to encourage this development trend also in the future in ETEN proceedings and journals.

We would also like to encourage you to look ahead to the year 2010, which is a 20th jubilee year of ETEN. We look forward to the new challenges and co-operation moves during this year. We also like to welcome you warmly to next annual ETEN conference, which will be held at the University of Helsinki on April 15th – 18th, 2010.

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I Educational Technology

1. How should information communications technology (ICT) be used to enhance teaching and learning in the early years? An investigation into the perceptions and attitudes of a group of early years trainee teachers

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> In order to enhance children's learning and help them to develop lasting and positive dispositions towards technology, early years educators must develop their own enthusiasm and confidence with regard to ICT.
> (Early Learning, Forward Thinking, 2003, p. 1)

Introduction

This paper examines how Initial Teacher Training (ITT) practices build confidence, capability and critical understanding in trainee teachers with respect to the use of digital technologies to support young children's learning. As a provider of ITT programmes with a specialism in Early Years education we need to ensure that we address both the professional and pedagogical capacity of our students, encouraging critical understanding of the nature of these digital technologies and resilience to the rapid nature of change.

The central principles of the Early Years curriculum in the UK are embedded in the everyday experiences of young children, and if the nature of their 'digital childhoods' is to be acknowledged then technology must be implicit in the opportunities we provide for them at this formative stage of learning.

Information Communications Technology (ICT) in Early Years education has a broad definition that centres on the experience of the young child and their relationship with technology. It is a definition that clearly identifies the importance of children using a wide range of devices and being provided with opportunities to talk about their experience of technology (EYFS, 2008). It adopts the kind of contemporary understanding of ICT suggested by Hayes (2006) and includes electronic toys that respond to a child's action, possibly cuddly or wearable and often likely to be representative of domestic devices. It acknowledges the child's experience as they interact with the technology embedded in their home environment, and see it in action throughout their wider environment. Embracing such a definition is useful when considering how to integrate technology with existing effective Early Years practice as it is easy to see how children can draw on this experience as a stimulus for play based learning. This idea that young children acknowledge the presence of technology in their 'socio-dramatic play' is central to the 'emergent ICT curriculum' defined by Siraj-Blatchford (2006).

The role of ICT in learning and teaching has evolved rapidly over the last decade from a comparatively marginal position to one where it is considered a core curriculum area. This is reflected by the challenges posed by school based placements as our student teachers are expected to demonstrate their capacity to meet standards in increasingly technology rich classroom environments (QTS Standards: Q16, Q17, Q23 relate specifically to the use of ICT). It is important therefore to provide our trainees with the opportunities to build confidence and competence, develop positive

attitudes and mindful perspectives with regard to the use of this technology, and equip them with the means to embrace its potential to enhance learning.

This paper is based upon a case study that examined the perceptions and attitudes of a small group of teacher trainees to ICT and its role in Early Years Pedagogy.

Review of literature

The debate surrounding the appropriate use of technology in the Early Years can be seen as a reflection of its proliferation in modern society and the response by successive UK Governments to prioritise and fund its integration throughout all sectors of education. However, this has been criticised for being politically driven 'technological determinism' (Buckingham 2007), where the effects on pupil's learning have often been left to conjecture. This widening debate is informed by opinion from a number of often opposing perspectives. Some of these explore the nature of good practice or promote the use of ICT generally, whilst others offer more critical opinions and call for a measure of restraint and reflection.

The political perspective

In an economic environment that increasingly depends on the central role of information, communication and technology, the importance of 'digital literacy' is being championed by politicians, policy makers and industry, is implicit in educational policy and seen as an essential component in the preparation of a future workforce.

The agenda for ICT in education in the UK is determined at a national Government level, implemented by agencies and departments such as the DCSF and presented as part of statutory frameworks such as the National Curriculum (DfEE 1999) and the EYFS (2008). Becta and OfSTED are periodically commissioned to undertake large scale research and review of the impact of these initiatives but have tended to focus on resourcing rather pedagogical outcomes (ICT in Schools, OfSTED 2002; Harnessing Technology Review, BECTA 2007 Machin et al, 2007).

To suggest by simply installing technology in a school, innovations and change would follow seem to be a difficult claim to confirm (Pelgrum & Law 2003) and there is a growing acceptance that the starting point should be the establishment of clear curriculum goals and pedagogical priorities. The recently revised statutory guideline for Early Years practitioners (EYFS, 2008) presents a themed structure that appears to have such a starting point. It is intended to complement the rich and varied home experiences of children and there is an implicit recognition here that children are indeed immersed in a digital world. Explicit reference to what young children should learn about with respect to ICT can be found and there are suggestions that young children should be given opportunities to "find out about and identify the uses of everyday technology, and use information and communication technology and programmable toys to support their learning" (EYFS, 2008, pp47). A key aspect of this is the recognition of the key role that Early Years practitioners have in building upon the individual experiences that children bring with them. It is the capacity of the trainee to adopt this role that is particularly pertinent to the focus of this study.

Cultural and ethical perspectives

The current debate over the role of technology in early childhood education represents a shift in thinking that began in the late 1990s and was described by Healy (1998) as a move from 'bedazzled advocacy' to 'troubled scepticism'. In parallel with the unprec-

edented investment in technology there were signs of a 'simmering revolt' (Reynolds 2001); a substantial commentary (Cordes & Miller, 2000, Cuban 2001, Doukidis et al 2004, Buckingham 2007) concerned with the nature of early learning and the potential harm that increasingly powerful technology may hold for young children.

Healy's claim (1998) that over exposure to technology from an early age can result in physiological and psychological harm is contended more recently by Aubrey and Dahl (2008) who suggest that there is currently no conclusive evidence related to such specific health indicators. They do however support the notion that for technology to have a positive effect on children's development it must be used in a developmentally appropriate manner. I would concur with this and suggest that practitioners working with very young children must have a clear understanding of what *is* appropriate.

This complex debate, far from reaching a consensus, appears to be becoming increasingly polarised. It is set against a social and cultural backdrop that has seen the birth of the first truly 'digital generation', the rise of 'edutainment' (Buckingham & Willett 2006) and the phenomenon of ubiquitous social networking technologies. The notion of 'digital inclusion', (Warschauer 2003), demands attention and Early Years practitioners should not assume that all children are equal in terms of their access to technology beyond the classroom setting. This demands of our trainees an awareness of the wider debate over ICT. It is a debate that does not centre on whether technology is a desirable component of education per se, but at what stage it is developmentally and ethically appropriate to introduce young children to such technologies.

There is a balance to be strived for where appropriate technology reflecting the child's wider experience can make a positive contribution to their early learning. Providing opportunities for student teachers to develop this critical understanding should be a key aspect of their initial training.

Pedagogical perspectives

Work by Loveless, DeVoogd and Bohlin (2001) suggests that identifying appropriate pedagogies and acknowledging the role that technology can play in enhancing existing good practice in the Early Years is not straightforward. The complexity of this task is shaped by the political, social and commercial interests that influence curricular frameworks and as such 'new' pedagogies are not the sole privilege of educators. There are also substantial differences between the maintained and non- maintained sectors, between child minders and playgroups and therein the experiences that individual children are afforded (Aubrey & Dahl, 2008).

However, there is a growing acceptance of what is considered to be 'good practice'. Siraj-Blatchford et al, (2002) and Hayes (2006) define a key aspect of this effective practice as the adult's capability to build on what the child knows and to lead them forward. Knowing when to intervene and how to encourage a child's autonomy; knowing when to step back and observe, when to ask a question or provide guidance is seen as the 'intelligent action' that lies at the heart of effective practice (Loveless, DeVoogd and Bohlin, 2001). This description of 'intelligent action' serves as a useful definition of pedagogy where the crucial role of the practitioner is to maintain learning through a deep understanding of the complex relationship that exists between themselves and the children. Learning in this case may be initiated and led by the child's enthusiasm for and experience of a particular aspect of ICT, but would also require specific competencies on behalf of the teacher and an appreciation of the potential of the technology.

Rather than a focus on practitioner skills, this research aims to explore the notion that where Early Years trainees have a positive disposition to the use of technology they are more likely to appreciate the complexity of this relationship and more able to support children's learning.

They need to recognise the value of moving from the type of 'reactive supervision' identified by Plowman & Stephen (2003) to the more conscious pedagogic strategy of 'guided interaction' defined by Aubrey & Dahl (2008). This pedagogical framework complements the idea of an 'emergent ICT curriculum model' (Siraj-Blatchford, 2006) similar in many respects to current approaches to early mark making in literacy and numeracy. It is an approach that would involve teachers in a process of not only guided interaction and adult mediated activities but of encouraging socio-dramatic play where technology maybe represented but not necessarily present.

Implications for initial teacher training

In preparing students for the award of Qualified Teacher Status we are tasked with addressing principles of pedagogy and issues of personal effectiveness in relation to the use of ICT in Early Years education. I would agree with the opinion of Kirschener & Sellinger (2003) who suggest that there are significant and clearly challenging implications for teacher training programmes that seek to prepare their future teachers for this environment. There are issues of competency linked to age and personal experience of ICT that can be further compounded by the rapid pace of technological change.

Gao et al (2007) suggest that there are an increasing number of studies that attempt to define how ICT should be integrated into teacher education programmes but that there is still limited research that tracks the change in student teachers' perspectives, attitudes and competencies over the course of their training and transition into initial employment. It is this disposition at an individual level that is considered to be one of the most powerful catalysts in the transformation of pedagogy (Reynolds 2001), and I would concur with Diaz (2001) in suggesting that the goal must be to prepare students to become effective teachers *with* technology rather than *of* technology.

Methodological approach

The study required an approach that was investigative and exploratory in nature, focusing on the subjective nature of the student experience. The design was dictated by the need to gather information about the attitudes and perceptions of student teachers in a learning environment that is inherently complex, driven by human interaction and the social construction of shared understanding. As such, a qualitative approach consistent with interpretive enquiry offered the most appropriate methodology.

A case study methodology consistent with the ideas of Bassey (1999) and Denscombe (2005) supported the combined use of questionnaires, focus group discussion and semi structured interviews to gather data and provide the basis for a rich discussion. The concern here is with the meanings that emerge through the thoughtful analysis of this data and an acceptance that the outcome will not be a scientific generalization but a deeper contextual understanding.

This research was undertaken within the school of Health, Community and Education Studies (HCES), Northumbria University and the students invited to participate in this study were drawn from the 2006 entry cohort for the BA (Hons) in Early Years

Education. This cohort consists of 114 student teachers who had recently made the transition into their final year of preparation leading to the professional qualification of Qualified Teacher Status (QTS). At this point in their training, issues of practice are paramount and their individual focus is shifting from building foundations of knowledge and understanding about the role of the teacher to the immediate practical issues associated with their final assessed school placements. The sample of thirteen participants was identified as a result of their decision to opt into a specialist module that examined the use of digital media based resources in the Early Years and Primary classroom.

This purposive approach to sampling enabled the selection of a potentially information rich sample of students who have a particular interest in the focus of this research. Ball (1990) cited in Cohen, Manion & Morrison (2007, pp115) supports this approach stating that, "in many cases purposive sampling is used in order to access 'knowledgeable people', i.e. those who have an in-depth knowledge about particular issues." Gliner & Morgan (2000) suggest that although this approach is unlikely to achieve the goal of complete representiveness it is recognized as an efficient strategy for small scale studies.

The questionnaire combined multiple choice questions with Likert style and open ended questions allowing respondents a range of ways to reflect on their own experience. This was distributed electronically via the University e-learning portal, completed on screen and submitted to a secure location. In this way it proved to be an efficient way of reaching the trainees who were by this time on study leave and resulted in a 100% response rate. A simple analysis of the biographical data (gender, age, entry qualifications) was then used to assign participants to either the 'focus group' or the 'interview' set. This data, together with my knowledge of each participant, helped to ensure a degree of homogeneity and a balance of strong personalities across the sub groups. Digital audio recordings were taken during all face to face sessions and summary transcripts submitted to participants for validation prior to further analysis.

Analysis and discussion

A systematic approach to analysis was adopted and the process of making sense of the data aimed to explore its context and validity in light of both the literature reviewed and the research design. This enabled tentative assumptions to be drawn that provided an insight to the issues that underpin this study.

Analysis of the questionnaire data involved simple descriptive rather than inferential statistics. Frequency analysis of the Likert scale data highlighted response trends that highlighted the participant's attitudes to ICT and perceptions of how it should be used in Early Years settings. However, no claim is made for the statistical significance of these findings as they originate from such a small sample and their real value was as a reference point to complement the findings from the focus group and interview stages.

The qualitative data collected throughout all other stages were analysed following a process of coding and categorisation involving an in depth scrutiny of the participant's responses that helped to identify the following themes.

Attitudes, confidence and competence

Analysis of questionnaire data suggests that participants consider themselves to be competent users of ICT with a strong understanding of Early Years pedagogy. There is also a strong indication throughout the literature (Pelgrum & Law 2003, Potter 2008, Loveless 2003) and across the participant responses that a positive disposition matched by a confident and competent approach by the teacher with respect to ICT are considered to be key elements in ensuring young children establish an appropriate relationship with technology.

In a study investigating primary teacher's approaches to using ICT to support children's learning in Literacy and Numeracy, Moseley et al (1999) found that there was a tendency for teachers with higher levels of ICT competency to exhibit a positive attitude to its potential. Teachers who considered themselves less skilled were shown to demonstrate negative attitudes towards ICT. However, a decade on I would suggest that this argument may be less robust as current findings indicate a shift in the relationship between personal competence and attitude to ICT. Moseley et al (1999) suggested that teachers "will probably need to improve their ICT skills to acquire the positive attitude that usually goes with such skills" (pp93). This suggests that the acquisition of skills is a prerequisite to the development of positive attitudes. Analysis of participant responses from the current study, suggest that this relationship maybe a more complex issue. Early Years trainees appear to approach the challenges associated with the integration of ICT into classroom practice with a positive attitude from the outset of their training. They recognise the potential that ICT has to offer and that a positive disposition is essential as they begin to acquire the skills that will give them the confidence to use ICT effectively to support children's learning and their own professional practice.

I would argue that the apparent shift in this relationship between attitude and competence is a reflection of the rapid pace of change in digital technologies over the last decade and the resultant impact on modern culture (Buckingham 2007, Doukidis et al 2004). Generic ICT skills are now acquired prior to the students beginning their initial teacher training and they bring with them an awareness of how technology impacts on their everyday experiences. Skills are no longer the prerequisite of a positive attitude but *are* crucial to the development of a confident and competent approach to teaching using ICT.

However, there is also evidence to suggest that there are individuals entering the BA(Hons) Early Years programme who have a narrower experience of ICT than that described above. Analysis of the biographical data would seem to indicate that whilst all respondents report a positive attitude to the use of ICT the skill set and confidence of entrants at the beginning of their training is affected by their age. This reflects the findings of Loveless (2003) who found that primary teachers tended to disregard their experience of ICT in their own schooling, describing it as irrelevant in terms of the impact on their current practice. This reflects individual prior experience of ICT over a period when it was perceived as a 'new' phenomenon that had little significance in the socio cultural context at the time of their training and in this way impact on their practice was limited.

Younger entrants will have had an enriched experience with regard to ICT in their own schooling over the last ten years in comparison to the more mature entrants and in this way are likely to begin their training with a more established skill set. This may have implications for the provision of appropriate opportunities to cater for the individual needs of more mature entrants and the potential value of collaborative approaches that facilitate a sharing of experience and expertise with younger trainees.

A positive disposition at the outset nurtured by meaningful opportunities to develop ICT skills in an Early Years context appears to reduce the significance of these initial differences in age related skill sets by the end of their training.

The child's experience of ICT

The idea that children should be able to role play with the 'real' devices they encounter in their lives outside the classroom was an idea that was discussed in the focus group discussion and highlighted the participant's perception of the importance of children's socio-dramatic play that draws on instances from their real lives and helps them to make sense of their experiences through 'pretend play'. Participants appear to have an awareness of effective pedagogy for young children learning with ICT despite not all of them actually witnessing children engaged in this kind of activity.

There was also an awareness that not all children in their classrooms will benefit from the kinds of rich experiences that provide a stimulus for such meaningful play. The notion of this 'digital divide' is defined by Buckingham (2007) and emerged as a theme during the focus group discussion as the participants recounted their individual placement experiences. The acknowledgment of this wider experience that young children bring to their classroom is vital to the teacher's understanding of individual needs and should inform their thinking when planning learning activities that could be enhanced by the inclusion of ICT.

Impact of placements

As expected, the nature of placement experience appears to have a significant impact on the trainee's developing expertise in relation to ICT. However, it would appear that not all placement settings meet expectations in terms of the effective use of a range of ICT resources. Participants reported on the impact of technical failure, teacher confidence and a lack of appropriate resources that suggests the technology rich Early Years setting is a nirvana that is perhaps not found throughout our partnership of schools. Clearly there are implications here in terms of ensuring an equality of experience for our trainee teachers that will allow them to develop confidence and competence in the kinds of situations that Loveless (2003) describes as relevant and authentic.

Conclusions

As they begin their training, students have differing levels of competence and confidence with respect to their individual use of ICT. Age on entry combined with their individual school experience appears to significantly influence these personal perspectives and is related to the recent and substantial impact of digital technology. The age profile of the study group is significant in this respect and it would seem pertinent to suggest that in a similar group where the modal age was lower and therefore their school experience more recent, perceptions related to the learning potential of technology would have been different at the beginning of their programme.

Initial assumptions about the degree to which technology is present across all school placement settings seem to be challenged by some participant responses that suggest ICT resources are often lacking or simply not used by school based staff.

However, participants clearly had strong views on how ICT should be used to enhance teaching and learning in the Early Years and by their final year of study have

developed confidence and competence in their use of ICT through a combination of University and placement experiences. This continues to be supported by their positive disposition to the challenges that ICT presents, and a growing awareness of effective pedagogical approaches.

Implications

There may be significant value in developing this research theme and extending it to include the whole cohort across each of the year groups on the Early Years Education programme. Refining the questionnaire and adopting a more rigorous approach to quantitative data analysis would complement focus group and interview data from each cohort and provide a more robust evidence base from which to generalise. However, the indication that placement experiences may not be offering an equality of experience in relation to the presence of technology may require research that is specifically focused on schools. This would be a more complex undertaking, requiring a sensitive approach and a careful consideration of ethics.

These participants have followed a programme of study that has has seen a move away from the generic skills sessions, described by Buckingham (2008) as the 'Microsoft Office' curriculum, to ones that are inherently practical and linked to their understanding of Early Years practice. This has been complemented by specific opportunities aimed at introducing the wider agenda related to technology in the Early Years.

This wider agenda refers to the socio-cultural context in which trainee teacher's experience is grounded and is a significant factor in ensuring 'confidence in change' (Loveless, 2003, pp324). Individual skills are only one aspect of a more complex relationship between this resilience to change and a confidence that is built on critical understanding and a positive disposition. University based training should continue to acknowledge the complexity of this relationship and provide opportunities that are responsive to individual needs but not focused narrowly on the acquisition of skills.

2. Inquiry-2-insight:
An international environmental science collaboration

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Introduction

In recent decades environmental issues have been of growing concern. In particular climate change is one of the major issues; for the first time in human history, we have conscience that we can impact our environment on a planetary scale. To solve this global issue, it is of upmost importance that each citizen takes action by engaging in sustainable and environmental behaviors. However taking proper action is difficult for many people because (i) the problem, happening now and accelerating, can seem too big to solve, (ii) climate change does not stop at international boundaries and in that respect people may feel that they have to deal with a problem their society did not create, (iii) despite the consensus in the scientific community[1], the media and internet release tremendous amount of information of different accuracy and quality[2,3]. Deep understanding and international overview of those issues will be the keys for the next generation of educators, citizens and policy maker to envision efficient and international solutions. In that respect education is the critical factor in dealing with global and local environmental problems.

Recent decades have also showed a major change in education: ICT tools are invading the classrooms[4,5] and use of social networks is now beyond the imagination of its own inventors. Indeed the Web is full of social networks dedicated to education[6,7,8]. Students are big social network consumers but their primary interests are entertainment and social exchange. Moreover despite their apparent technological skills, students are not necessarily fluent in information, visual and technical literacy; most student acquisition of these skills is accidental[4].

The Inquiry-to-Insight (I2I) project offers an educational program combining ICT, social networking and pedagogy directed at environmental issues. The I2I idea is to pair classes from different countries within a social network. The students compare views, attitudes and life styles around three environmental issues (climate change, environmental pollution and habitat preservation) and will increase their understanding of those issues with different educational tools mainly based on ICT. Preliminary results indicate that this approach motivates students, provides educational opportunities while enhancing ICT literacy and expands a narrow view of the environmental issues to an international one.

The project

Started in November 2008, the I2I project is collaboration between Stanford University, California, USA and Gothenburg University, Sweden and their respective marine

stations; Hopkins Marine Station and Sven Lovén Center for Marine Sciences- Kristineberg. A pilot study was conducted pairing senior students from Sweden and California. The Swedish students are enrolled in a national marine biology program at Gullmarsgymnasiet, Lysekil. The students from Seaside High school, Seaside, California are members of an advanced biology class.

The tools

I2I aims to implement and evaluate ICT tools to increase student's awareness of environmental issues and to broaden students' views. During our pilot study we evaluated different tools presented and described below.

Social network

We set up an educational social network with the Ning online platform. This platform gives anyone the opportunity to create their own social networks around specific interests with their own visual design, choice of features and member data[9].

We use the I2I social network both as a learning platform and as a socializing place, as we have found that the comfort level of the students increase as they become acquainted with each other and the I2I team.

The I2I Ning page includes 5 main features:

- Students set up their own **personal page** and answer a questionnaire concerning their life and involvement in environmental issues. They read each other's personal page and send comments back and forth. This feature has lead the students across the ocean to get to know one another better. Students can upload pictures and videos on their personal page to illustrate themselves and their life.
- Students have the opportunity to create their own **blog** as a place for free expression. This feature is very important to create personal bonds between students.
- A **forum** feature is dedicated to discussions related to science, class assignments and to introduce new activities. Amongst others, students use it to share environmental perspectives and to measure their personal energy consumption (via our Carbon Footprint activity described below). They then compare and discusse their carbon footprint in the two sister-school classes. The students' data are presented in graphical form so the students can analyze how their footprint compared to the class distributions and means. This facilitates class discussions through a meaningful graphical example.
- Three **RSS feeds**[10,11,12] are displayed in order to keep track of the latest environmental news. Those articles are used as resources for assignments and discussion starters.
- The **chat** feature gives students the chance to talk in real time.

In order to energize the collaboration between students in US and Sweden, they participate in cross-ocean group projects. Each group investigate a question (of their choosing, with teacher approval) related to a broader topic in relation with climate change such as transportation, food choice, household energy, or media attention. Groups lead their inquiry with teacher support. Students are guided to find the resources and evaluate their accuracy by checking sources and author in order to improve their critical thinking abilities.

The students are free to use the communication tools they think are best for the collaboration (email, facebook, skype, elluminate, I2I Ning page...). In order to share their research with their peers from the other groups, students will create a multimedia presentation to be posted on the Ning page.

Virtual activities

All the tools developed are meant to be open resource. So far we developed 2 online curriculums:

The **carbon footprint activity**[13] gives students the opportunity to take a critical view of their own energy consumption and to find solutions to decrease their personal emissions. This virtual activity is divided into three parts. The first is an introduction to the problem and a link to a carbon footprint calculator; each student answers questions concerning their life style to determine their carbon footprint. Once they know how much carbon dioxide they release, they consult a world map with the emission per country in order to see their own consumption in a global context. Finally the animation aims to help students to think about their behavior and how simple actions in their everyday life can significantly decrease their carbon footprint.

The **ocean acidification animation and virtual laboratory**[14] include background information on how or carbon dioxide emissions impact oceans pH (ocean acidification), an interactive model of ocean acidification, a comparison of calcifying organisms believed to be severely affected by ocean acidification, an interactive evolutionary tree of calcifying organisms and a virtual laboratory where students address the question: How does ocean acidification effect sea urchin larval development? In the virtual lab, students complete the procedural steps of the experiment: setting up replicate cultures, feeding the larvae, making water changes, and observing the changes in the larvae over time. Then, they set up slides for measurement analysis. The students make the larval measurements themselves for a subset of the larvae (a different subset for each student), calculate the treatment means, and then can compare their subsample results to the entire statistical sample. The data the students analyze are actual data gathered by I2I scientists leading research on ocean acidification.

VoiceThread

To support a more authentic learning context and to clarify students understanding, interactions between scientists and students are important[15]. Unfortunately this requires more time and money than schools can afford and more time than scientists can allocate. The virtual conference can be a good alternative to gather scientists and students into a discussion. In that respect, VoiceThread seems to be the perfect tool.

A VoiceThread is a collaborative, multimedia slide show that holds images, documents, and videos and allows people to leave comments in different ways – recording voice, typing text, uploading files, videotaping with a webcam- and share with anyone. VoiceThread allows group conversations shared in one place, from anywhere in the world[16].

During our pilot study, Dr. Dupont- a biologist leading researches on effect of ocean acidification at the Sven Lovén Center for Marine Science created a VoiceThread on his research and results and posted it on our Ning page. Students can have a look at the talk at any time, learn at their own pace, and have ongoing discussions on the topic with other students and I2I team members.

All these contacts make the project and the issues more tangible to the students. Furthermore, these more personal and in-depth interactions give students the opportunity to gain a deeper understanding of complex scientific issues such as ocean acidification.

Results

Quantitative data

In order to evaluate I2I project we designed 2 surveys –one general and one focusing on ocean acidification- that students fill in once before they start the project and one at the end of the academic year. As the I2I academic year ends, students will take the general post-survey. They completed the post survey on ocean acidification at the conclusion of the ocean acidification animation.

The ocean acidification survey is designed to assess students' knowledge on this issue and how student evaluate their own knowledge. The ocean acidification survey includes 6 questions. The knowledge score was range from 0 (all wrong answers) to 1 (all right answers).

Our tools significantly increase students' knowledge on ocean acidification. Figure 1 compares the results from the pre and post surveys from the Californian and Swedish students. While there was no significant difference between Sweden and California (an average score of 0.55; $F=0.27$, $p<0.6$), a significant increase in knowledge of 30% ($F=11.6$, $p<0.001$) was observed in both countries as a result of exposure to the I2I OA activity (ANOVA II, $F=3.96$, $p<0.01$).
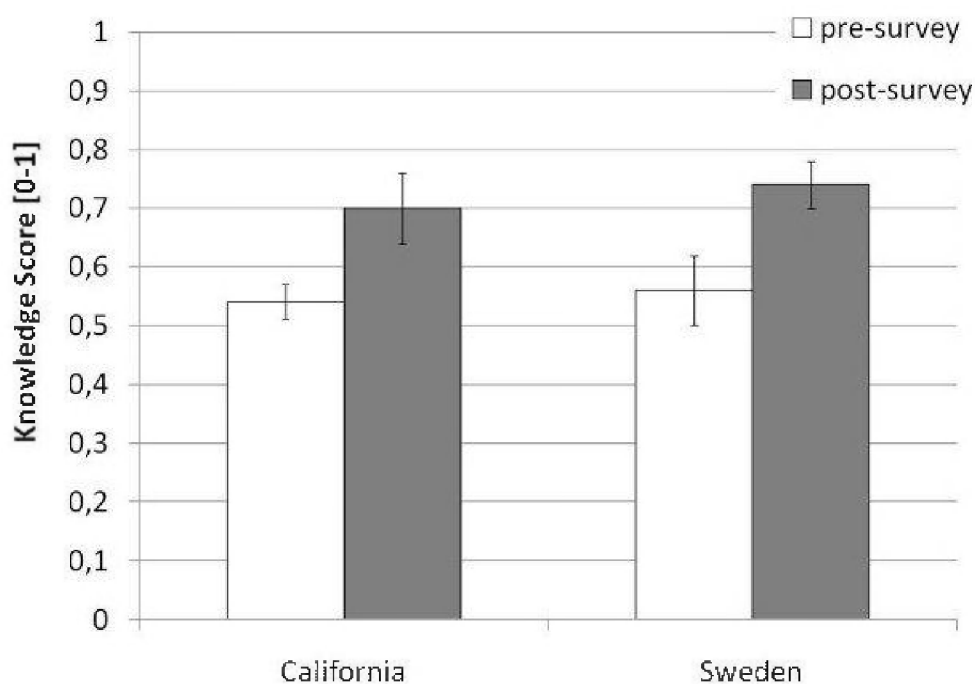
Figure 1: Increase in knowledge (scored between 0 and 1) after the OA animation. Pre-survey in California, n=15. Pre-survey in Sweden, n=15. Post-survey in California, n=9. Post-survey in Sweden, n=13. The error bars represent the standard error of mean.

Students were asked to evaluate their level of knowledge with a value between 0 (no knowledge at all) and 1 (best knowledge). The table 1 shows that student' self-evaluation increases significantly through time by almost 27 % in Californian and by almost 21% in Sweden.

Table 1: Increase in student self-estimation of knowledge on OA before ("pre") and after ("post") undertaking the OA activity. Mean ± standard error of mean.

Value	California (pre) (n=15)	California (post) (n=9)	p	Sweden (pre)(n=15)	Sweden (post) (n=13)	p
[0-1]	0,358±0,052	0,454±0,058	*	0,56±0,0	0,676±0,036	*

Figure 2 illustrates the relation between self-estimation of knowledge and real knowledge on ocean acidification. The symbols (dots and squares) above the line indicates that students' knowledge are higher than their self-estimation of knowledge which means that they under-estimates themselves. The symbols below the line indicate that students overestimate themselves since their knowledge score is under their self-estimation of knowledge.

The majority of our students from both countries underestimate their knowledge before and after I2I participation.
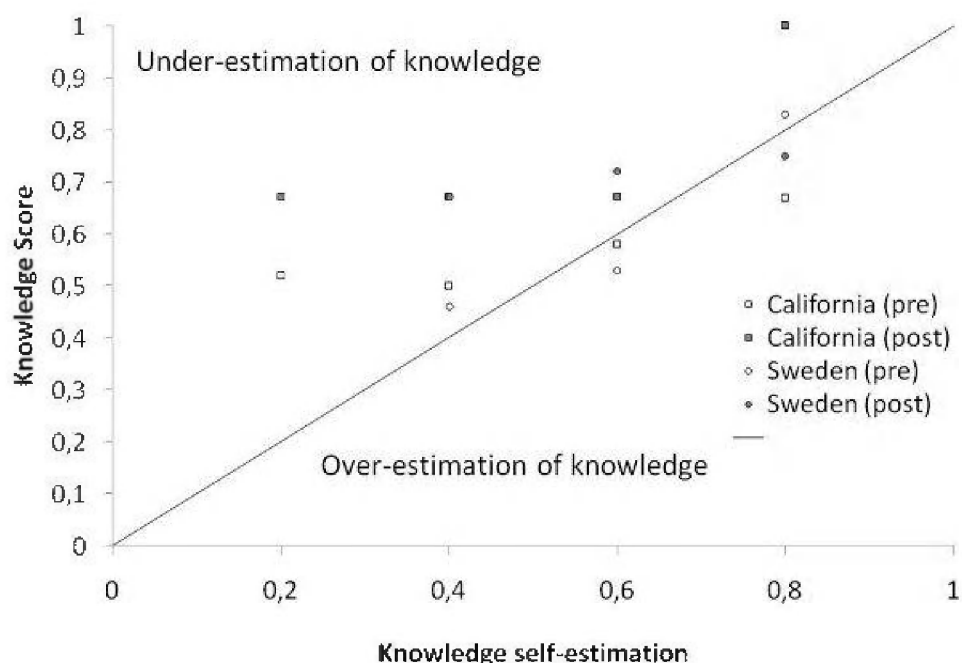
Figure 2: Relation between self-estimation and real knowledge on OA

Qualitative data

Student response and enthusiasm surpassed expectations. On both sides students were eager to meet the sister students and to get to know each other. Students showed an important interest for the social networking aspect. However, it has been a challenge to bring an educational focus to ICT tools that students use mainly or exclusively in a social context. Thus, while students eagerly used the Ning site to design their personal pages and participate in blog discussions, they did not often engage in educational or scientific forum discussions.

By contrast, students participate actively when they are guided in forum discussions such as "bad environmental habits" or "comparison of students' carbon footprint". Moreover students that never or rarely spoke in class often participated very actively.

A concern was that Swedish students could feel a bit insecure and shy with their English compare to the Californian students. The ICT tools show all their potentials by deleting this concern. In fact, ICT tools gave Swedish students time to formulate, modify and improve their comments while interacting with students or the staff.

Discussion

We evaluated a group of 30 high school students –15 in Lysekil, Sweden and 15 in Seaside, California, USA– for their knowledge on the topic of ocean acidification (OA) before and after undertaking our online OA activity. In both groups of students, knowledge of OA increased by about 30% as a result of exposure to the I2I OA activity. These preliminary results, showing similarity across the ocean, may indicate the broad applicability of our OA activity across cultures.

Interestingly, students in both the US and Sweden underestimated their knowledge of OA, both before and especially after exposure to the I2I OA activity. The fact that their knowledge increased more than they realized may be seen as a validation of our interactive approach: our activity is designed to be engaging and entertaining, something the students may not generally associate with the learning process. It is possible that they learn more than they realize in this context, something we might refer to as "stealth teaching." More extensive and complete evaluations will be required to evaluate this possibility.

Conclusions

Our preliminary results show that the new tools that we have developed increase students' awareness and understanding of some environmental issues. This project will also help each school fulfill its goal of education in for four different sides.

(1) The scientific side is provided by virtual laboratory experiences and virtual discussion with scientists. Laboratory experience is critical for understanding science; lectures and readings do not convey the scientific process[17, 18]. Yet laboratories are disappearing because they are expensive, require more time than the typical class period, and entail extensive teacher preparation and set-up. Computer-based virtual activities, which simulate (and ideally complement) real lab experiments give the student the flavor of the actual experience. The labs we have developed are made more relevant[19] since the students repeat actual experiments on environmental problems, including acquisition and analysis of real data. The students will have the opportunity to discuss - amongst others - those data with the scientists who collected them thanks to VoiceThread discussions.

(2) The critical thinking side is provided by teacher-directed (and scientist-validated) analysis of internet content. The web is full of facts about the environment but this information does not necessarily lead to constructive action since this media often presents contradictory views, even on issues that have a broad consensus in the scientific community[2, 3]. Making use of resources that are available in the digital world, evaluating the source of this information, and learning to assess apparently conflicting views is a critical part of the learning process. Student understanding of the strengths and limitations of the web will be an important benefit from this project.

(3) The international side is a unique aspect of this project. Students in sister schools in Sweden and the US (as well as other countries as the project progresses) will communicate, collaborate and compare personal, family and cultural views on attitudes and behaviors related to environmental problems in their respective coun-

tries. We believe that this comparative approach, which provides a novel and motivating experience, will remove the narrow perspective where students in each country may feel that their countries' mode of behavior is the only possible route. This international component broadens the students view and provides a global approach to shared problems[20].

(4) The education side is supported by ICT and the peer discussion via social networks within and between classrooms in the different countries. Various studies[21, 22, 23] show that students' performance, engagement and motivation are improved by ICT tools when they are wisely embedded in the curriculum, and that peer discussion increases understanding[24]. Such findings form an important foundation for our project. We believe this project will be a model for use of those emerging technologies[19].

The innovative hypothesis being examined by the I2I project is that sharing views on common environmental problems by social networking will motivate students, enhance learning and shift student views from an insular to a global one. If validated, this approach would become a paradigm for enriching education and providing global perspectives. The possibilities are limitless, ranging from examination of other shared environmental problems to looking at seemingly intractable differences between warring countries.

Perspectives

In the coming years, our goal will be to develop I2I in three directions:

More tools

- We will improve our developed activities on ocean acidification and carbon footprint regarding to students feedbacks, expectations and needs.
- We will undertake larger-scale and more complete testing of our online activities, including the use of control groups of students exposed to a non-interactive ("paper") acidification curriculum.
- We will develop additional activities on mercury toxicity and sustainability/habitat issues.
- I2I will partner with Ege University, Turkey to develop a new and user-friendly online collaboration learning (OCL) tool. This tool will facilitate students' collaboration and teachers' follow-up of the group assignments, and will be designed with reference to the modes of communication that the students themselves favor in the pursuit of their group projects this year (2009). Then in 2010, we will consult closely with the students as they pilot test the new OCL tool, and subsequently modify the design to accommodate their needs and suggestions.

More students

- The first step will be to involve more classrooms and then more schools in both Sweden and the US.
- We will also invite other countries to be part of Inquiry-to-Insight.
- In order to make our project widely useable around the world, we will translate it into Spanish and French.

Broad accessibility

Inquiry-to-Insight is designed to be viable without our active participation within 3 years. In that respect we will create an "I2I Guide" in English, Spanish & French, freely available for teachers. The I2I Guide will describe each ICT tool and offer specific ideas on how to implement it in their classrooms. As we are cognizant of

school's differing levels of computer technology access, the I2I Guide will help teachers choose the I2I tools and activities that are best suited to their needs.

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For more information

Inquiry-to-Insight website http://i2i.stanford.edu/

Online curriculum:
http://i2i.stanford.edu/footprint/footprint.html
http://i2i.stanford.edu/carbonlab/co2lab.swf

3. Awareness about globalization:
On serious games as a pedagogical tool for global understanding

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Abstract

This paper highlights teacher training students learning about global issues, in this case the conflict in Palestine. The students are all studying Civics and a course called "International relationships". Lectures, semininars and discussions are frequent teaching methods within this course. But this time around we have also tried out a serious game. It is a computer game called "Global Conflict Palestine" and it is sold as a complement to the usual text books by a well known publisher in Sweden. In the computer game the student act as a journalist and with paper and pen he/she collects information from all kinds of meetings and then publishes the results in a newspaper. The student decides if he/she should publish the article in a Palestine, Israeli or a more neutral paper.

Our ambition is to discuss this new method we call serious games. What is the learning outcome and what kind of awareness and abilities does a game like this create? Can this computer game attract pupils not interested in ordinary education? Can students/pupils be more affected by this method than by other teaching methods or does it conserve prejudices and misconceptions?

Background

Globalisation is a frequently discussed phenomenon on the educational arena in Sweden. Without any doubt, we are influenced by this globalisation; increased trade and personal communication, mutual dependency, international migration, environmental threats, shortage of resources and so on. To handle this, how should teachers treat globalisation in compulsory school and in higher education?

Data from the latest national evaluation of the compulsory school (Oscarsson, 2005) shows, amongst other things, that

- pupils who are interested in a given topic also learn more effectively,
- the pupils are optimistic regarding their own future but pessimistic when thinking about our common future (troublesome areas: conflicts, the environment, poverty and global injustices),
- interdisciplinary organization promotes learning, and
- many pupils tend to explain poverty and starvation in Sweden as a result of individual shortcomings, whereas the same problems on a global scale are given structural explanations.

The evaluation also shows that global issues like war and peace, as well as possible reasons for conflicts, are treated frequently in Swedish schools. However, this doesn't necessarily mean that pupils are encouraged to actually discuss *specific* global political incidents. The evaluation also states that pupils tend to give one or two explainations to problems like "Why are some countries rich and others poor?" Very few, and mostly girls, are able to give broader explanations consisting of both internal and external factors.

We think that one explanation for this poor understanding is that much of the teaching, in Sweden, is based on text books and that those are prone to offer just one or two explanations to complex phenomena.

The national evaluation also shows that pupils are very interested in global issues, and also that they like to know more about life conditions in different countries. Clearly, the Swedish school has not been successful when it comes to appreciating this interest.

Now, can we use unorthodox methods to improve and develop respect, tolerance and transparency for other people and cultures? For us, it is worth trying out serious games as one of many possible methods to enhance our pupils awareness about global issues. In the long run, this may improve our education for sustainable development.

The use of simulations and games can thus be summarized:

1. It increases student motivation.
2. It facilitates the affective aspects of learning.
3. It enhances interpersonal relations and they can also work as interpersonal incitaments for learning.
4. In achieving cognitive outcomes, the game method works at least as well as conventional methods.
5. It leads to improved communication within the classroom setting.
6. It most likely tends to produce a more integrated view of complex phenomena.
7. It promotes individual learning, in so far as each pupil can bias the playing of the game according to his/her own experiences and knowledge.

In summary: Simulations and games plug many gaps that conventional methods of instruction are unlikely to fill; they round out the learning experience (Dukes, 1997).

To, when teaching about global issues, avoid a cognitive bias, emotions as well as actions ought to be focused upon. In an efficient educational setting, those three dimensions – cognition, emotion and action – act together in a dialectical manner. Arguably, the goal should be that the pupils evaluate the conflict – what is right and what is wrong? When teaching about issues like the Middle East conflict, one preferably begins by stirring up emotions and then moves on to cognitive undestanding, and perhaps the computer game can facilitate this (a set of values, based on facts, analysis etc, being a preferred end result). As a consequence, pupils can choose to take immediate or future action.

These intellectual qualities can be developed using the computer game (adpoted from Arevik-Hartzell):

- Oscillation between concrete phenomena and abstract thoughts.
- Analysis of consequences regarding human actions.
- The capacity for critical thinking.
- The capacity for evaluation.

Evaluation of Global Conflict Palestine

We have several reasons for using "Global Conflict Palestine": It is a new game, it is an interesting pedagogical tool and it deals with an ongoing conflict (more than ever so during 2008/2009 due to the escalation of the war in Gaza).

Each of the game's 6 cases takes about 25-60 minutes to play and the game's target group is students at 13-19 years of age. This is the scenario (from the English website http://www.seriousgames.dk/new/products.php): *You have just arrived in Jerusalem armed with a pen, a notepad and your sharp wits to get you through the challenges ahead. The conflict is one of the most complex and talked about in the world. The Israeli-Palestinian conflict is for most known through headlines and news flashes, but rarely one gets deeper into the troubling issues of human rights, checkpoints, settlements, martyrs and suicide bombs that haunt the region. In a region where nobody agrees on anything, and terror occur on an everyday basis, you have to*

navigate as a journalist. Will you be able to get a solid story? The goal is to allow the different voices in the conflicts to be heard, and allow you to make up your mind about what is right and wrong.

In order to find out what educational use the game might have, we have evaluated the game by letting teacher training students play it, reflect upon it and discuss it. A total of 37 students participated in the evaluation (24 male and 13 female students). They were all gathered for a three hour long test of the game (including evaluation). The open questions were for example "what did you like/dislike with the computer game?" and "what kind of pedagocial reflections do you make?". There were also questions with fixed alternatives.

95 % of the students considered the game "very good" or "good". 75 % stressed the usefulness of the game and they also claimed that they will use it in their forthcoming role as teachers, while the others perhaps will use it in the classroom.

According to the students, positive aspects of the game are: Since you actually meet people in the midst of the conflict, and not just learn about the conflict on a macro level, it provides a balanced and even realistic view of the conflict. It also sets focus on medias role and it certainly is up to date (The Middle East and Gaza has been a burning issue in media during this period). Many of the students also find the game fun to play.

On the negative side, according to the student group, we find the fact that the game takes quite a long time to play. Nothing actually happens while walking around, or taking a cab, in Jerusalem. This is the most important negative criticism but the students had other things to say as well: The conversations in the game were too long, they wanted more information, they wanted to use their own writing skills and many of the students also would have liked to meet and communicate with more people than was possible on the missions. A significant aspect is that some student's claim that the game doesn't appeal to feelings and emotions as much as a role play is able to. We cannot tell from our survey, but perhaps this is due to the slowness of the game.

The student's suggest that it is best to play the game together with a class mate in order to facilitate discussions and actions while playing the game. Finally, the students emphasized the necessity of teacher debriefing in class. This preferred debriefing may include reflections and discussions about the learning outcome and the articles the pupils create, reasoning of perspectives and sources, discussions about media's role in the conflict and also a meta-discussion about the game itself (does the game give a balanced view of the conflict?).

Conclusion

A computer game can be a useful complement to ordinary text books and lessons, and if field studies or studying visits are not possible, a game like the one we have tested can simulate experiences of global issues. Simulations and games involve emotions which can create a deeper interest as well as a deeper understanding of the studied phenomena. The computer game can also attract students who are not that interested in ordinary teaching. In the game, the student must be active, in this case as journalist. The challenge is very much based on real situations. The game focuses on the conflict as a whole, which has interdisciplinary advantages and this will probably promote learning, not only about the conflict as such, but also when it comes to the development of abilities like critical thinking, viewing of different perspectives, communication, decision-making, analyzing etc.

Finally, it like the computer game, together with appropriate debriefing on behalf of the teacher, may be a suitable tool to increase the awareness of globalisation and achievement of different perspectives in a Civic content.

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II Internationalization

4. UNESCO for teacher educators

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Abstract

This article describes the value of UNESCO for teacher education institutes. Following a general introduction to UNESCO and ASPnet, various opportunities for teacher-education institutes are reviewed. The review is followed by a case study from Amsterdam, in which Hogeschool van Amsterdam and Berlage Lyceum have established a successful collaboration for UNESCO. The article concludes with a discussion of UNESCO's Four Pillars of Education and the way they have been used as guiding principles in educational programmes at GROUP T – International University College Leuven.

Introduction

GROUP T - Leuven Education College and the School of Education at the Hogeschool van Amsterdam (HvA) have been cooperating since 1998. In 2008, the two institutes joined ETEN together, and they delivered a joint presentation at the conference in Liverpool. In the same year, both institutes applied successfully for membership in UNESCO's Associated Schools Project network (ASPnet), thereby opening new avenues for collaboration. In January 2009, GROUP T started delivering its International Educating Classes, which are based on the UNESCO's Four Pillars of Education.

This article provides an overview of how the two teacher education institutes set up their cooperation for UNESCO and which initiatives they undertook for collaboration with other parties (e.g. schools, national UNESCO committees and UNESCO as a whole). The experiences of these two institutes may serve as a case study for other teacher education institutes that aspire to work with UNESCO themes or to join ASPnet.

About UNESCO

The United Nations Educational, Scientific and Cultural Organization (UNESCO) was founded on 16 November 1945. Education, Social and Natural Science, Culture and Communication are all means to the ultimate goal of building peace in the minds of people.

As stated on the UNESCO website,[1] UNESCO functions as a laboratory of ideas and sets standards for forging universal agreements on emerging ethical issues. The Organization also serves as a 'clearinghouse' for the dissemination and sharing of information and knowledge, while helping Member States to build their human and institutional capacities in diverse fields. In short, UNESCO promotes international

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[1] www.unesco.org

cooperation among its 193 Member States and six Associate Members in the fields of education, science, culture and communication.

UNESCO works to create the conditions for genuine dialogue based upon respect for shared values and the dignity of each civilization and culture. Through its strategies and activities, UNESCO is actively pursuing the Millennium Development Goals, especially those aiming to halve the proportion of people living in extreme poverty, to achieve universal primary education, to eliminate gender disparity in primary and secondary education, to combat HIV/AIDS, malaria and other diseases and to ensure environmental sustainability.[2]

Education for all

Because UNESCO believes that education is the key to social and economic development, education is at the heart of the Organization. UNESCO's core mandate is to provide Education for All (EFA). The Organization works for a sustainable world, with just societies that value knowledge, promote a culture of peace, celebrate diversity and defend human rights, all of which can be achieved by providing EFA.

Priorities in the field of education include basic education for all (with special attention being given to literacy, HIV/AIDS prevention education and teacher education in sub-Saharan Africa), secondary education (including technical and vocational education and training, as well as science and technology education), promoting quality education (with special reference to values education and teacher education) and higher education.[3]

Each year, UNESCO publishes the *EFA Global Monitoring Report*, an assessment of where the world stands with regard to its commitment to providing basic education to all children, youth and adults by 2015.[4]

UNESCO is the lead agency for the UN Literacy Decade (2003–2012). While coordinating the efforts of diverse partners, UNESCO is developing new tools to measure the impact of literacy campaigns and programmes.[5]

UNESCO is also leading the UN Decade of Education for Sustainable Development (2005–2014) to highlight the central role of education in the pursuit of sustainable development.[6]

About ASP

In 1953, UNESCO launched the Associated Schools Project network (ASPnet). At present, ASPnet is a global network of approximately 8,500 educational institutions in 178 countries (ranging from pre-, primary and secondary schools to teacher education institutions) that work in support of quality education in practice.[7]

Since the foundation of UNESCO, educators and teachers have collaborated closely with the Organization to find new ways to enhance the mutual international and intercultural understanding of children and youth through education. The ASPnet was founded to realise these ideas. Ever since that time, associated schools have co-

[2] www.un.org/millenniumgoals
[3] http://portal.unesco.org/education
[4] www.unesco.org/education/efa
[5] www.unesco.org/education/litdecade
[6] www.unesco.org/education/desd
[7] http://portal.unesco.org/education/en/ev.php-URL_ID=7366&URL_DO=DO_TOPIC&URL_SECTION=201.html

operated to promote the ideals of UNESCO. They do so by conducting local and global projects (some of which are pilot projects) that are intended to prepare children and young people adequately for the challenges of an increasingly complex globalised society. This provides teachers and students with the opportunity to work together and to develop innovative teaching strategies and new learning methods and materials from local to global levels, overcoming the boundaries of classrooms, schools, countries, regions and cultures.

The new ASPnet *Strategy and Plan of Action 2004-2009* [8] emphasises the reinforcement of the Four Pillars of Education for the 21st Century (i.e. learning to know, learning to do, learning to be and learning to live together) and promoting quality education as outlined in the *Dakar Framework of Action*.[9]

ASPnet schools are encouraged to conduct pilot projects on four main themes of study, which cover a wide range of interrelated sub-topics. The projects should be based on issues that are relevant to the students' own environments, concerns and aspirations. The four themes are as follows: (1) world concerns and the role of the United Nations system, (2) education for sustainable development, (3) peace and human rights and (4) intercultural learning.

ASPnet Membership

Becoming an Associated School does not change a school's governance structure. Schools may apply for the status of 'pilot school' and join UNESCO's Associated Schools Project after a certain period.

In 2003, UNESCO published the *Global Review of the UNESCO Associated Schools Project*.[10] In this report, the researchers conduct a detailed examination of the organisation and the history of the network, its activities and management, along with impact and future priorities of the project. The *Global Review* concluded that "ASPnet is in a unique position to effect improvement in educational quality as defined by the areas such as peace, democracy, rights, sustainable development and the quality of life".

In the Netherlands, the National UNESCO Committee has delegated their dealings with schools to the European Platform.[11] At present (May 2009), six secondary schools in the Netherlands are members of ASPnet for secondary education. A parallel network counts five vocational schools and two institutes of higher education as its members. The School of Education at the HvA is the only teacher education institute that is a member.

In Flanders, the Flemish UNESCO Committee has delegated their dealings with the Flemish ASPnet schools (four primary schools and 19 secondary schools) to the UNESCO Platform.[12] At present, the Flemish ASPnet can be considered a dormant network. The Flemish UNESCO Committee and the UNESCO Platform are therefore collaborating to re-launch the UNESCO activities of the schools within the network. GROUP T – Leuven Education College is collaborating closely with both the Platform and the Committee in order to realise this reactivation in 2010.

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[8] http://portal.unesco.org/education/en/files/23215/10649120591Draft_ASPnet_Strategy_/ Draft%2BASPnet%2BStrategy%2B
[9] www.unesco.org/education/efa/ed_for_all/framework.shtml
[10] http://portal.unesco.org/education/en/files/23509/10654517241Global_Review_Report_ENG.pdf /Global%2BReview%2BReport%2BENG.pdf
[11] www.europeesplatform.nl
[12] www.unesco-vlaanderen.be

UNESCO cooperation between Leuven and Amsterdam

Leuven and Amsterdam started their UNESCO cooperation in 2008, after both institutes became UNESCO schools. At the time, Leuven and Amsterdam already had a ten-year history of cooperation. Their collaboration is based on the shared didactic concept of the two institutes: a competence-based model with the student portfolio as its backbone.

The UNESCO cooperation was launched in October 2008, when GROUP T held a one-day seminar on the occasion of World Teachers' Day.[13] A range of prominent speakers from UNESCO presented their views, as did the Flemish Minister of Education. The speakers were followed by workshops, two of which were facilitated by HvA staff members.

Joint activities in 2009

The following step in this UNESCO cooperation involved the conference 'Teacher in Europe', which was held in Amsterdam from 11-13 March 2009. During this annual student conference, students design international projects (e.g. Comenius 1) for schools of primary or secondary education. The theme in 2009 was 'The Four Pillars of Education'. Stijn Dhert, dean of GROUP T, acted as keynote speaker, highlighting the opportunities of the Four Pillars for current and future teachers. Students were then asked to incorporate the Four Pillars into their project proposals. This assignment proved easily manageable.[14]

On 19 and 20 March 2009, lecturers and students from the HvA joined a delegation from GROUP T for a study visit to Paris. The visit consisted of a full day of presentations at the UNESCO headquarters. The following day's programme contained a morning visit to the International Institute for Educational Planning (IIEP) and an afternoon session of presentations and workshops at OESO. One of the presentations was held by students from GROUP T's International Educating Classes (IEC), who presented their work on educational scenarios.

The joint presentation of this paper by the present authors took place on 24 April at the ETEN 2009 conference in Kusadasi (Turkey). The most recent joint UNESCO activity of Leuven and Amsterdam took place on 15 May 2009. Students from GROUP T's International Educating Classes came to Amsterdam for a seminar on Education for All and the adjustment of education to the individual needs of the student. International students from the HvA the United Kingdom and Finland also participated in the seminar, as did guest lecturers from the University of Helsinki.

Other activities

Not all of the UNESCO-related activities of the two institutes have been conducted jointly. In 2008-2009, Amsterdam was UNESCO's World City of Books. One of the many activities involved the publication of the *Book of Importance*, in which a range of prominent Dutch public figures wrote contributions stressing the importance of

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[13] The post conference website of the Leuven seminar can be found at:
www.groept.be/www/nieuws/events/2008-2009/2008-10-03/
The students' project proposals can be downloaded from the post conference website:
www.teacherineurope.eu

reading and literacy. At the HvA, students developed the Lesson of Importance, a set of learning materials on literacy, to be used in schools.[15]

Why UNESCO for teacher educators?

UNESCO provides several opportunities for teacher education institutes. First, it provides a window on the world of education. UNESCO is the leading world organisation for educational planning and educational innovation. Therefore, its framework, activities, initiatives and publications offer ample opportunities for teachers and students to look at the world of education from a local as well as a global point of view.

A second opportunity provided by UNESCO involves focusing on educational issues around the globe, as well as at home. Literacy and similar issues are not only relevant in Africa; they pertain to Dutch and Flemish classrooms as well. UNESCO's International Literacy Day (8 September) offers an opportunity to highlight this issue in national and international contexts.

Membership in the ASP network opens up a third opportunity, which involves new ways of cooperating with schools. In many cases, teacher educators are largely unaware of developments in schools in the area of internationalisation. This means that they do not know how to prepare future students for their roles as internationally oriented teachers, who must integrate an international dimension into their teaching and who will be involved in collaboration with colleagues abroad. Because UNESCO schools have made a conscious choice to 'open their windows', they are attractive partners for teacher education institutes. Cooperation within the framework of UNESCO means that both partners 'speak the same language'. The case study presented later in this article illustrates the cooperation between HvA and the Berlage Lyceum, which is also located in Amsterdam.

A fourth advantage of UNESCO for teacher educators involves the framework of existing activities for which UNESCO membership may be used. Many teacher education institutes already have activities in the field of one or more of the ASP themes, although they may not always be structured or balanced. UNESCO could serve as a benchmark for these activities (e.g. with regard to global citizenship or working with developing countries). The Millennium Goals can be guiding principles in this respect.

A final advantage is that UNESCO is a brand name that nearly everyone recognises and associates with worthy causes, although these associations vary. In addition, some associate UNESCO primarily with developmental aid, while others may relate UNESCO primarily with world heritage. The fact that UNESCO is a brand name helps to create support among staff members in teacher education institutes. On the other hand, it could also create the mistaken impression that UNESCO membership will bring in grants and subsidies. It is fair to say that UNESCO does not have positive connotations for everyone. Some will find UNESCO an exaggerated bureaucratic organisation that is too focused on itself to act as a real agent of change.

A case study: HvA and Berlage Lyceum

The School of Education at the HvA and Berlage Lyceum began their UNESCO collaboration in 2007. The fruitful collaboration between a teacher education-institute

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[15] http://www.amsterdamwereldboekenstad.nl/UserFiles/File/LES_VAN_BELANG.def.pdf (in Dutch)

and a school emerged in a relatively short period, as UNESCO themes and events were used as joint reference points from the beginning.

Characteristics of Berlage Lyceum

Like many schools in the Netherlands, Berlage Lyceum is part of a group of schools (in their case, the Esprit Group, which consists of eight schools). Berlage Lyceum is a school for secondary education in the area known as 'Ring 20-40', which was constructed between the World Wars around the historical centre and the 19th century residential areas of Amsterdam. Berlage Lyceum is named after Hendrik Petrus Berlage, one of the Netherlands' most famous architects. The school was built according to the architecture of the 'Amsterdam School', making the Berlage Lyceum a true Amsterdam school in two respects.

Berlage Lyceum offers three programmes. The five-year senior general secondary education programme (HAVO) prepares students for study at a university of applied sciences. Six years of university preparatory education (VWO) allow students access into a research university. Preparatory vocational secondary education (4 years) provides access to senior secondary vocational education and training or, laterally, to senior general secondary education. Berlage has students of 66 different nationalities. It is a bilingual school, which means that students can choose to take courses that are taught in English for the first three years of their programmes.

The policy at Berlage Lyceum focuses on global citizenship and a cultural profile, as well as opportunities and care for individual students. Berlage Lyceum is an ASP school, and it has chosen 'Global citizenship' and 'Peace and human rights' from among the four ASP themes. The school organises an annual 'Week of Human Rights' and has a project entitled 'Breaking the Silence', which focuses on the transatlantic slave trade.

The initial steps

Initial discussions took place between Jos Beelen (Head of the International Office at the School of Education) and Anne de Visch Eybergen (the principal at Berlage Lyceum). This phase was marked by a growing awareness of a solid foundation for cooperation, based on a shared view on education. A number of questions were raised: Which specific student competencies provide advantages in UNESCO schools? Which competencies should UNESCO teachers have? How could teacher educators prepare students for their roles as UNESCO teachers? This phase resulted in a joint mission statement. The HvA described specific UNESCO competencies for current and future teachers, while Berlage Lyceum described the UNESCO competencies of their students.

Both partners then described their 'company cultures'. The version prepared by the HvA emphasises openness towards the outside world, meaning the direct surroundings of the school as well as Europe and the world.

In the third section of their mission statements, both institutions stated their commitment to heritage, another UNESCO theme. This heritage is present in everyday school life, as both institutions are housed in historical buildings. Berlage Lyceum is housed in two brick buildings, which were designed as schools by A. J. Westerman in 1924. In 2011, the School of Education will return to its original home, the monumental Philip Kohnstammhuis, which was built by G. Friedhoff in 1958 as a tax office.

From policy to action: UNESCO days

In a second phase, UNESCO coordinators Annemieke Mol Lous (HvA) and Ning Wah Choy (Berlage Lyceum) were involved. In this phase, it was necessary to decide on activities to follow up on the mission statements. One logical step was to celebrate UNESCO days together. At the School of Education, a programme was designed for International Literacy Day (8 September), which includes presentations from teachers and students at Berlage Lyceum.

The programme on World Teachers' Day (5 October) will take place at Berlage Lyceum. Lecturers and students from the School of Education will present educational scenarios for the future, which they will then discuss with teachers and pupils.

Further collaboration

Berlage and the HvA also agreed on a number of 'deeper' avenues for collaboration, which involve students from the School of Education. These students follow a series of courses entitled 'Classroom with a View'. This series is a minor programme (30 ECTS) that trains students to teach courses in bilingual schools (using the CLIL methodology) and to become international school coordinators. Students in this minor comprise a combination of Dutch and international exchange students within the School of Education.

Each year on the European Day of Languages (26 September), pupils from Berlage's bilingual stream go out to primary schools to tell about the way they follow courses in English. For the next Day of Languages, they will be trained by students from the 'Classroom' minor, who will thus work intensively with pupils in secondary bilingual education.

Students from the minor will also assist in the development and preparation of Berlage's project on slavery, which is aimed at raising awareness for human rights among students.

Finally: formalities

In typical Dutch fashion, the formalities were developed at a later stage. A memorandum of cooperation was drawn up in which partners pledge commitment to joint actions in order to give meaning to their status as UNESCO schools. Several of these actions are mentioned in the MOC, as is their yearly evaluation by the UNESCO coordinators. The Head of the International Office and the principal of Berlage Lyceum have yearly meetings to decide on the policy and approve the activity plan for the coming year.

Future Dutch national policy for education?

There is growing awareness that global issues in education should be the concern of every student in higher education, both as global citizens and future professionals. The Netherlands Organization for International Cooperation in Higher Education (Nuffic) held its annual conference on 31 March 2009, with the theme 'Internationalization and cooperation with developing countries'.

Doekle Terpstra, chair of the Board of Universities of Professional Education, has expressed a clear opinion that all students in higher education should make a con-

tribution in their own fields towards achieving the Millennium Goals. In his speech he also advised all Dutch universities of professional education to incorporate this into their mission statements and policy plans.

If all Dutch students are to contribute to the achievement of the Millennium Goals, future teachers should surely be the first do so. Would it not be strange for Dutch engineers to assist teachers in developing countries while Dutch teachers do not help their colleagues? Teacher education institutes should indeed be the first to follow Terpstra's advice.

Teacher education and the four pillars of education

The Four Pillars of Education form the basis for the UNESCO report *Learning: The Treasure Within*.[16] These pillars cannot be defined separately; they form an integrated whole, complementing and strengthening each other. This is logical, as education is a total experience.

Learning to know. 'Learning to know' lays the foundations for life-long learning. This pillar refers to the basic knowledge that we should be able to understand our environment and to live in dignity. This pillar also involves arousing curiosity, which allows us to experience the pleasures of research and discovery. It challenges us to combine a sufficiently broad education with the in-depth investigation of selected subjects. Learning to know obviously presupposes that we will develop the powers of concentration, memory, and thought: in short, it assumes that we will learn to learn.

Learning to do. 'Learning to do' refers to the acquisition of practical skills, as well as to an aptitude for teamwork and initiative and a readiness to take risks. As such, this pillar involves the competency of putting what we have learned into practice in order to act creatively on our environment. Diverse situations are bound to arise, many of which are unforeseeable. When this happens, learning to do enables us to turn our knowledge into effective innovation.

Learning to live together. 'Learning to live together' is the pillar that UNESCO emphasises more than any other. It refers first to developing an understanding of others through dialogue, thereby leading to empathy, respect and appreciation. If we are to understand others, however, we must first know ourselves. Learning to live together thus also involves recognising our growing interdependence, experiencing shared purposes and implementing common projects and a joint future. Only then will it be possible to manage the inevitable conflicts in a peaceful way.

Learning to be. 'Learning to be' is founded on the fundamental principle that education should contribute to the holistic development of each individual. This pillar addresses the need to broaden care for each aspect of the personality. It deals with allowing the freedom of thought, feeling and imagination that we need in order to act more independently, with more insight, more critically and more responsibly. The aim of education is to discover and open up the talents that are hidden as treasures within each person.

Teacher education and the four pillars

In our view, institutes for teacher education have the responsibility and the opportunity to make current and future teachers aware of the importance of both the Four Pillars and UNESCO's fields of interest. With regard to the Four Pillars, we believe that

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[16] Delors, J. e.a. (1996), *Learning: The treasure within*, Paris: UNESCO, www.unesco.org/delors

institutes for teacher education should not only teach about these pillars, but should also use them as guidelines for establishing powerful learning environments. Without going into detail, and with no ambition whatsoever to present an exhaustive list of recommendations, we will illustrate how the four pillars can be used as a guideline for creating powerful learning environments.

With regard to the pillar of 'learning to know', institutes for teacher education should be able to create learning environments for their students that focus on 'deep-level learning'. If they want to be more than simply 'deliverers of knowledge', future teachers should be stimulated to explore the world. They should have the competencies necessary to trigger curiosity in their pupils and students. In the same spirit, learning environments must be created in which 'mastery proceeds performance'. Future teachers should also be more than merely 'collectors of grades', and they should be eager to be life-long learners. They must have the competencies necessary to arouse the curiosity of their students in order to shape them into critical citizens.

If they are to contribute meaningfully to the pillar of 'learning to do', it is important for future teachers to be faced with challenging tasks throughout their education. Because we expect teachers to be innovative and creative professionals, we must offer them opportunities to try new methods and to explore their own skills and competencies. It is therefore necessary to create learning environments in which trainees are challenged to do things differently and in which they are challenged to take risks and to look for new ways of learning and teaching. In these environments it is not 'OK' to play it safe, and trainees should not be afraid of initial failure.

The Treasure Within

The authors of *Learning: The Treasure Within* place the idea of working together on common projects at the heart of the pillar of 'learning to live together'. In their view, involvement in common projects can be an effective means of avoiding conflict or resolving latent conflicts. Throughout their education, therefore, future teachers should have opportunities to collaborative on common projects, not only within their institutes of teacher education, but also in authentic global and local projects.

"Education should contribute to every person's complete development – mind and body, intelligence, sensitivity, aesthetic appreciation and spirituality". This is the focus of the pillar of 'learning to be'. To realise this goal, every institute of teacher education has the responsibility to create learning environments that challenge all aspects of the whole personality of every student. The main objective of this task should be to enhance every student's self-concept and professional concept, challenging them to give a personal as well as a professional answer to the following (and related) questions: 'Who am I (and why)?' 'What kind of teacher am I (and why)?'

The four pillars in Leuven

The International Educating Class (IEC) at GROUP T – Leuven Education College is an innovative, learner-centred project, which uses UNESCO's vision on the Four Pillars of Education as the structuring principle of the curriculum. Each pillar is explored from the perspective of both the learner and the educator. The content of each module is inspired by key themes in UNESCO's education programs for culture, education and sciences. The programme was created in collaboration with the Flemish UNESCO Commission and assistance from the HvA. We refer to the article by Milton George in this volume for more details on this programme.

The future

Membership in the ASP network opens up possibilities for cooperation between teacher education institutes. Future plans of the HvA and GROUP T include exploring possibilities with Oslo University College, also a member of ETEN.

Several ideas have been developed about local or regional subdivisions of ASP-net. Primary and secondary schools could collaborate with teacher education institutes in their own regions.

Recent experiences in the Netherlands show that ASP teacher education institutes may play an important role in 'recruiting' schools for that network. These schools can offer students authentic, UNESCO-related tasks (e.g. the development of learning materials). Teacher education institutes can also coach schools that are just embarking on the UNESCO path. They may advise them on developing UNESCO policies as part of their internationalisation plans.

Such collaboration can help teacher education institutes gain better insight into the actual internationalisation processes of schools and future teachers must do in order to contribute to these processes.

Conclusion

Our recent experiences have shown that UNESCO and membership in the ASP network are valuable tools that teacher education institutes can use to broaden their perspectives on education. Involvement with UNESCO themes is therefore a good way to stress the social responsibility of current and future teachers and teacher educators, as well as the importance of world citizenship.

5. Implementing a new education program in a globalizing world: The 'International Educating Class' @ GROUP T – Leuven Education College, Belgium

Milton George

> "If you believe that education is the most power-
> ful means to change the world, then you will also
> agree that the people who pave the way to create
> such change are the teachers." UNESCO[17]

These challenging times require new ways of learning and developing competences that will ensure that students experience their world with an open mind, can find their rightful place in it, and become the main force behind their own learning process. With its *International Educating Class*, Group T – International University College Leuven (Belgium) seeks to help students (re)discover the educating dimension of their whole life, regardless whether they are teachers or not.

Introduction

GROUP T is an International University College at the heart of Europe. It has two main departments, engineering and education, both sharing a common vision: "Group T's objective is to provide education in the broadest sense, both locally and globally, from a plurality of world views. Based on the 5E concept (Environmenting, Enterprising, Engineering, Educating, Ensembling)".[18] Our engineer students are encouraged to add an educating or educational dimension to their work and our education students are challenged to bear in mind that their training and future work must always include an engineering component. Both our engineer and teacher students are invited to conceive of their learning programs as the beginning of a creative journey with a positive impact on the surrounding natural, social and spiritual landscape.

We are not a confessional college, but we are interested in helping the spiritual evolution of humankind to higher levels of personalism and solidarity. We are not merely market-driven; we also wish that our graduates will become positive forces of development. This explains why Group T has found in UNESCO, in general, a source of inspiration and in Southeast Asia, in particular, a challenging and happening environment to exchange ideas and expertise, as well as to learn new approaches.[19]

It was within this general spirit that the Leuven Education College envisaged the possibility of setting up an International Educating Class (IEC) founded on the vision of UNESCO, especially its Four Pillars of Education. We were entrusted with the task of jotting down the first ideas of what would finally become, with the help of the IEC planning team, the current design of the program.

The purpose of this short paper is to let you catch a glimpse of what motivates the IEC (its philosophy, principles and approach) and what it actually is made up of

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[17] http://www.unescobkk.org/education/apeid/apeid-international-conference/apeidconf08
[18] GROUP T's Mission Statement. http://www.groept.be/www/over_groep_t/visie_en_missie/mission-statement.
[19] http://www.unesco.org/delors/fourpil.htm

(its structure and modules). It will become clear that the UNESCO's Four Pillars of Education constitute the IEC's spinal cord.

Vision

The International Educating Class (IEC) is an innovative, learner-centered project which channels the international background of its students into the program and uses it to enhance learning. UNESCO's Four Pillars of Education (learning to know, to do, to live together, and to be) are the structuring principle of the IEC's curriculum, within which each pillar is explored from the perspective of the learner as well as of the educator. The content of each module is inspired by key themes in UNESCO's education programs for education, natural sciences, social and human sciences, culture, and communication and information.

The IEC puts UNESCO's goal of quality education into practice by promoting mastery of learning tools, skills that are long-lasting and robust, and an attitude rich in values (such as perseverance, openness, ambition, inquisitiveness, and interest in learning). Students are encouraged to become navigators for peace and agents for positive change, for instance, setting up laboratories of ideas and developing innovative and international educational approaches. For all this, the framework of "Education For All by 2015" (EFA) functions as a point of reference.[20] In doing so, they translate the Four Pillars of Education into good practices of quality education.

By means of the IEC, GROUP T committed itself to creating an intercultural learning environment where our international students can help one another become increasingly critical, open-minded and proactive, both as learners and as educators. In dialogue, our Cameroonian, Chinese, Pakistani, Nigerian, Sudanese, Ethiopian, Dutch and Belgian students challenge one another to look at the issues from multiple perspectives. They also must learn to work together in groups, adapting and changing their styles in function of the group. All this does not happen by chance: it belongs to the very philosophy of the IEC as being a concrete example of the implementation of UNESCO's Four Pillars of Education.

Principles

The IEC wants to be existentially meaningful and pragmatically useful. It wishes to be a stepping-stone in the learning process of our students. Several classifications of learning and cognitive styles were used to implement IEC (Dunn and Dunn, 1978; Felder, 2000; Gardner, 1993; Kolb, 1984).

As said before, the basic principles guiding the program are UNESCO's Four Pillars of Education: learning to know, to do, to live together, and to be. These pillars have inspired the program in two ways: firstly, they are the actual foundations on which the design of the whole program and its modules rests and, secondly, they deeply influence the syllabus of each separate module and the ways in which it unfolds. Given the importance of the Four Pillars of Education, it is necessary that we explain how we understand them in the context of the IEC.

Learning to know. Rather than to focus on the acquisition of structured knowledge, we prefer to zoom in on the mastery of learning tools, that is, on the acquisition of the instruments for understanding. Our aim is that our students not only learn data, but also *how to learn* effectively and continuously. To become versatile learners and

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[20] http://www.unesco.org/en/efa-international-coordination.

educators, it will be required of our students that they work on their cognitive as well as meta-cognitive competencies.

Learning to do. Our approach is both rooted in the present and future oriented. We envisage solution-oriented effectiveness in dealing with the challenges at hand as well as inventiveness in engineering the future. This includes the promotion of an open spirit and an inquiring mind that goes beyond the established borders, nationally and internationally. Students will be challenged to increase their individual professionalism, to operate from a solution-oriented perspective to real (past or current) and imaginary (future) problems, and to approach known and unknown situations analytically.

Learning to live together. Our philosophy embraces a collaborative and empowering view of education. To reach new levels of world cooperation, well-being, integration, and peace, strongly and increasingly collaborative and affirming teaching methods are needed. That is why IEC students will be challenged to work in teams creatively, actively, and positively. They will be challenged to plan and execute projects, both alone and in group, to be able to report in writing on past experiences as well as on plausible future ones and to think critically about globalization and nationalism. They will have to negotiate their differences and search for ways to achieve their common goals, for instance, by working in groups, planning their projects and carrying them out together, including the organization of educational trips in Europe. By working together, the cultural differences between them will become manifest. Sometimes, that will be a joyful experience; other times, less so. The difference between these experiences and everyday ones is that the ones at the IEC are part and parcel of an educational project. All these challenging experiences are taken up into the reflective trajectory to which the students are invited.

Learning to be. We believe that education is at the service of the positive evolution of the individual and the community, as well as their environment. That is why, throughout the curriculum, students will be challenged to be critical of themselves, of others, and of the situations within which they meet. It is not all about learning "stuff," but also about thinking styles (Yu-ping Hsiao, 1997; Witkin et. al, 1977). Learning to be is the pillar that materializes this conviction. It is the umbrella pillar that brings together the previous three. The students are helped to grow as persons that are both individuals and members of a (world) community by reflecting on what they are learning, doing and experiencing together. This happens during each of the modules and, especially, during their portfolio time (see below).

As part of learning to be individuals and members of the community, the IEC indirectly includes a certain degree of transformation of the students' frames of reference (points of view, habits, and worldviews). From this year's experience, we can say that the program has clearly encouraged (maybe even indirectly forced) them to embark on a critical reflection of what they were learning, doing and experiencing together. They have thus become aware that nobody can really learn to be more and better without changing in the process (Hall, 2006).

Approach

The IEC has been conceived of from an integrative perspective. Its aim is to upgrade, expand and deepen the knowledge, skills, and attitudes that its participants have already acquired. As indicated above, the programme intends to promote knowledge that can be learned, skills that are long-lasting and robust, and an attitude rich in val-

ues (such as perseverance, openness, ambition, inquisitiveness and interest in learning, including "learning to learn").

The IEC approaches its students as adults who have chosen to increase their potentials for seeing what the issues at stake are, acquiring relevant knowledge, assessing alternatives, acting effectively and ethically correct, solving problems at hand, foreseeing and planning a new course of action and taking on (new) responsibilities. This approach has a number of characteristics; it is:

- *Instrumental*: first and foremost it will offer material that is useful.
- *Reflective*: it will promote critical thinking.
- *Participative*: it will be a group enterprise, involving students, instructors, and other staff members.
- *Networking*: it will promote a team effort carried out worldwide.
- *Real-life based*: it will actively involve the experience of students and instructors.
- *Contextual*: it will sharpen our students' awareness of the creativity and multidimensional interplay between local and global will be sharpened by favouring the use of real-life cases as learning materials.
- *Holistic*: every component is at the service of the development of each one of the students and meant to be part of a meaningful whole.

Structure and modules

The IEC is structured in light of the Four Pillars of Education and in keeping with the conviction that education is broader than schooling; we are not all teachers, but we contribute, positively and negatively, to one another's education as persons. Consequently, all modules are grouped under one of said pillars and approached taking the students primarily either as learners (L) or as educators (E). The IEC program consists of the following modules.

Learning to know

Capacity building (L, 3 ECTS): Students get an insight into six domains of capacity building: Government, Civil Society, Community Development, Partnerships, Climate Change, Technology (Hailey, James and Hailey, 2007). The importance of capacity building in developing countries is reflected in the UN Development Programme's description of its core function: "to help develop the capacities required to achieve the Millennium Development Goals (MDGs)".

Organizing education (E, 3 ECTS): Students analyze UNESCO's vision of the Four Pillars of Education, explore its mission to achieve Education for All by 2015, and gain insights into its ideals: e.g. the fight for equal access to education at all levels, the promotion of gender equality with regard to curriculum material, or both the enhancement of the access to information as well as the promotion of information and media literacy in order to bridge the digital divide.[21] They also learn about projects aiming at realizing these ideals such as the Associated Schools Project Network.

Learning to do

Learning strategies for innovation (L, 3 ECTS): Given that learning is a key to innovation, students learn proactive hands-on strategies for learning and performance by constructing laboratories of ideas. The aim is that they discover the enterprising

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[21] Final Report of the Director-General's Consultation and 15th Quadrennial and Statutory Conference of National Commissions for UNESCO in Europe and North America 2008

dimension of education at large, daring to innovate and to challenge other people to participate.

Enterprising education (E, 3 ECTS): During their internship and project week, students receive the necessary tools to learn from the process involved in drawing up a project (including giving a class presentation), conducting the project in a concrete learning setting, and analysing their own performance. Among the tools used are: experience-based learning, problem-based learning, and active learning.

Learning to live together

Living together in 2025 (L, 3 ECTS): Students define a shared vision of (one aspect of) living together in 2025. From the field of future studies, they learn to identify the megatrends of today that will shape tomorrow's world. By applying the scenario method, they learn to turn those possible futures into vivid scenarios and to backcast ways to arrive there. Drawing on strategic management theory, they learn to define paths towards their most desirable visions. In this way, the exercises in envisioning the *future* becomes a route planner for navigating the *present* (Benammar et al., 2006; Isaacs, 1999).

Education, society and intercultural dialogue (E, 3 ECTS): Students zoom in on the socio-economic and cultural aspects of educational issues in the globalised world. They gain some perspectives on the dynamic interplay of global, national, and local forces as they shape the functioning and outcome of educational systems in specific contexts. Attention will be given to democracy, human rights, ethics, and international migration. They are challenged to develop insights, as well as perspective-taking skills (Halsey, Lauder, et. al, 1997) concerning the functions, co-ordinates, borders, and challenges of education.

Learning to be

Portfolio & final reflection paper (L & E, 6 ECTS): Students are invited to develop competency-oriented learning and to assess their competencies in an integrative fashion. Under the supervision of a coach, they work on their portfolio during the whole program, gathering evidence of the competency or competencies that they have been concentrating on. They reflect on their experience, which occupies a central place within this meta-cognitive trajectory. They also evaluate their participation in the program, whether and how it has contributed to their fulfilment and their becoming navigators of peace and agents for positive change. Students must therefore collect and store their work in a portfolio, out of which they select the elements that they will discuss at the end of the program. This way, students are given the tools to observe the quality of their own achievements more directly, and to identify more clearly the areas where improvements are still needed. Their portfolio will tell a story about their own growth as participants.

Language - code & culture (L, 3 ECTS): This module is not intended as a 'course in English', but rather in language as communication, illustrated mainly through English. Participants will be asked to apply the findings of the course to their own native language and present their own findings in class and/or in a paper. The main aims are to gain insights into how language in general – and English in particular - works as a code, and to understand why it is of vital importance to understand the code correctly in order to effectively pass on information. It will also be seen how a language code is shaped and determined by the culture underlying the language. It is

at this stage that the roles of language and culture in education become especially significant. A closer look will also be taken at what happens when a foreign language is used to teach mixed groups, what effects this may have on cross-cultural understanding, and how – in turn – language itself may be affected in such a context.

China: its language & culture (L, 3 ECTS): This module is intended as an introduction to the Chinese language and culture. It will consist of three components: (1) a general introduction to the geography, history and socio-economic development of China, (2) Chinese language: history and structure of the Chinese language (spoken, written en computer variants), differences from Japanese, and some "survival" dialogues, (3) workshops (Chinese cuisine, tea ceremony, Taijiquan, and movies).

Final evaluation

The IEC program described above was inaugurated and implemented during the second semester of the 2008-2009 academic year. Twenty-two students registered in it, hailing from Sudan, Somalia, Ethiopia, Pakistan, Cameroon, Nigeria, Belgium, Portugal, The Netherlands, and China. Ten of them were Erasmus students, five were postgraduate students, and seven were undergraduates.

This year's students have indicated that the IEC program has been demanding but also greatly rewarding. Those who are going to be teachers suddenly became aware of the broader context of schooling, which is not always made explicit within teacher training programs. Those who will not become teachers have discovered the education dimension of the whole of human life.

As of 2010, the IEC will be combined with a second international program, also inspired by UNESCO's educational vision. They will both be full-time one-semester programs consisting of theoretical and practical components.

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III Mathematics Education

6. Turkish pre-service mathematics teachers' beliefs about mathematics

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Introduction

Teachers' beliefs about teaching and learning mathematics significantly affect the form and type of instruction they deliver (Clark & Peterson, 1986; Richardson, Anders, Tidwell, & Lloyd, 1991) so that teachers' belief about mathematics takes the attentions of researchers. Mathematical belief system is defined as one's mathematics world view that means the perspective with which he/she approaches mathematics and mathematical tasks (Schoenfeld, 1985).

Ernest (1989) suggested three hierarchical views of mathematics; instrumentalist, Platonist, and problem solving views. The instrumentalist view sees mathematics as an accumulation of unrelated facts, rules, and skills. From this perspective, mathematics is a set of unrelated but useful rules and facts. The Platonist view of mathematics pictures mathematics as a static but unified body of certain knowledge. From this point of view, mathematics is discovered, not created. The problem solving view sees mathematics as a dynamic, continually expanding field of human creation and invention, a cultural product. According to this perspective mathematics is a process of enquiry and is not a completed product, for its results remain open to revision.

When we look at the literature on pre-service teachers' beliefs, we can see several studies implying that pre-service teachers have not very high level beliefs to mathematics. According to findings of Ball (1990) for pre-service teachers doing mathematics means following predetermined procedures step by step to arrive correct answer", knowing mathematics means "knowing how to do it" and mathematics is a mainly gathered of facts and rules.

As Shoenfeld (1985) stated for pre-service teachers formal mathematics has little or nothing to do with real thinking or problem solving. According to them mathematics problems are always solved in less than 10 minutes, if they are solved at all. Another remarkable point is pre-service teachers believe that only geniuses are capable of discovering or creating mathematics.

Findings of the Peck and Connell (1991) asserted that pre-service teachers believed the followings;

- Math is computation.
- Mathematics problems should be quickly solvable with simple routines using as few steps as possible.
- Aim of doing mathematics is to obtain "right answers".
- Solving problems consists of recalling and applying specific algorithms.

Having seeing all these studies, I wonder that whether Turkish pre-service teacher hold similar beliefs or not. Therefore the aim of the study is to identify pre-service mathematics teachers' beliefs about mathematics. The term pre-service teachers' beliefs about mathematics is used as that which constitutes their subjective knowledge about the nature of mathematics, learning and doing mathematics and teaching mathematics.

Method

Sample

Data of the study were collected from 32 (17 female, 15 male) pre-service mathematics teachers. They have BS degree of mathematics and are attending mathematics teacher certificate programme.

Instrument

Teacher candidates were surveyed by use of self-report questionnaire related to beliefs about nature of mathematics and process of teaching and learning mathematics. The questionnaire involves 14 five-point Likert type items with five possible alternatives (strongly disagree, disagree, uncertain, agree, strongly agree). Negative statements were scored on a 5-point Likert-type scale ranging from 1 (least negative) to 5 (most negative) and positive statements were scored on a 5-point Likert-type scale ranging from 1 (least positive) to 5 (most positive). The Cronbach alpha reliability coefficient of this scale was calculated as .82. Besides pre-service teachers were asked 4 open ended questions about their beliefs on teaching and learning mathematics as
- How do you see gender differences in mathematics learning?
- What are the attributions of success and failure in mathematics?
- How do you know if you have learned a mathematical concept?
- What do you think are the tree most important characteristics of a good math teacher?

Findings and conclusions

In this part findings of the study will be presented by comparing related literature. The pre-service mathematics teachers' beliefs about the nature of mathematics were determined by the use of first three Likert type items. The means and standard deviations of their scores about these items are displayed in Table 1.

Table 1. Means and standard deviations for the item of beliefs about the nature of mathematics

item	mean	SD
1. Math is number	2.04	0.95
2. Math is problem solving	3.53	1.04
3. Math is doing calculation	3.01	1.01

As it is seen from the means and standard deviation values, pre-service teachers more agreed about the idea of "math is problem solving" than the idea of "math is doing calculations". For the item "math is number", their mean score was about 2, that means that they disagreed about the idea of math is number. When we compare this score with the previous findings, we can say that these findings are similar with Cooney (1985)'s finding of beginning high school teachers believed that mathematics was primarily problem solving. On the other than, findings contradict with Schoenfeld's (1985) statement which is pre-service teachers believe that formal mathematics has little or nothing to do with problem solving. Beside similar to my finding, Beswick (2005) found secondary mathematics teachers equates mathematics with calculation however Beswick, Watson, & Brown, (2006) found only % 29 of the middle school mathematics teachers agreed with the idea of mathematics is computation.

The pre-service mathematics teachers' beliefs about teaching and learning mathematics were determined by remaining items. Their means and standard deviations values about these items are given in Table 2.

Table 2. Means and standard deviations for the item of beliefs about learning and doing mathematics

item	mean	SD
4.Some people are good at math and some people are not.	4.01	1.03
5.Some students can increase their math competencies by trying hard whereas others cannot.	3.78	0.68
6.To be good at mathematics, students have to have a "mathematical mind".	3.37	0.78
7.Math is work of genius.	2.09	0.98
8.Knowing how to do computation is more important than understanding why to do that computation.	1.96	0.67
9.Getting right answer is the most important thing in math.	2.07	0.96
10. When students have difficulty in mathematics, a good approach is to have them memorize the relevant formula.	2.34	1.06
11. Math is necessary in real life.	4.03	1.02
12. Compared to boys, I think girls need to work harder to keep up with boys in mathematics.	1.81	0.83
13. If I can't do a math problem in a few minutes, I can't do it at all.	1.03	0.54
14. I easily give up trying when I can not solve a math problem.	1.42	0.63

The first three items in this table represent similar ideas. The pre-service teachers mean score was higher than 3 for these items. This means that they thought that some people are good at math and some people are not, some students can increase their math competencies by trying hard whereas others cannot and to be good at mathematics, students have to have a "mathematical mind". But it seems conflicting that they don't believe the idea of "math is work of genius". These findings are similar with the findings of Frank (1990), who found that pre-service teachers agree with the item of "Some people have a mathematical mind and some don't". However these findings contradicts with some studies as Schoenfeld's (1985) in which it was stated that pre-service teachers believe the idea of only geniuses are capable of discovering or creating mathematics and Beaton, et al., (1996); and Foss and Kleinsasser's studies (1996) in which is was found that teachers believe that ability in mathematics is innate.

For the item of "Knowing how to do computation is more important than understanding why to do that computation" and "Getting right answer is the most important thing in math", pre-service teachers mean score was about 2. This means that, they did not think that doing computation or finding correct answer without understanding is very important. In other words they have not an instrumentalist view. However for the item of "When students have difficulty in mathematics, a good approach is to have them memorize the relevant formula", their mean score was higher than the mentioned two items. That can be interpreted as pre-service teachers believed that memorization is not important for mathematics but if students have difficulty they can be undecided about memorization. These findings contradict with the previous studies which revealed pre-service teachers (Benbow, 1993; Foss & Kleinsasser, 1996; White, Way, Perry & Southwell, 2005) and in-service teachers (Ball, 1990; Southwell & Khamis, 1992) believe that mathematics is simply knowing how to do it or remembering proper procedures.

For the item of "Math is necessary in real life" pre-service teachers mean score was about 4 which means that they believed the idea of in real life they feel the necessity of mathematics. This finding contradicts with the Ball's (1988) finding of pre-

service teachers found mathematics was mostly abstract and symbolic, having little to do with the real world and Cooney's (1985) finding of beginning high school teachers believed that some mathematics may not have real- life applications.

Last two items were related with the pre-service teachers' beliefs about their own learning. By considering mean and standard deviation values of these two items we can say that they did not seem to give up easily in solving math problem when they cannot find solution in the first attempt. In addition to this, they did not believe the idea of "If I can't do a math problem in a few minutes, I can't do it at all."

The first open ended question asked to pre-service teacher was about their beliefs on gender difference in mathematics learning. 22 pre-service teachers stated that there is no gender difference in mathematics learning. 3 pre-service teachers thought that there is gender difference and it changes ages to ages. For example they said that in elementary school level girls are more successful than boys, at high school level the opposite can be seen. The remaining 7 pre-service teachers stated that boys are more successful in learning mathematics.

The second open ended question was "What are the attributions of success and failure in mathematics?" That is pre-service teachers asked about their desirable output for mathematics learning. 7 of the pre-service teachers wrote something which can be interpreted as computational like finding correct answer, getting higher score etc. 4 of the response involves some affective properties like confidence in mathematics, having motivated to study mathematics. 7 of the pre-service teachers mentioned something which can be labeled as conceptual like understanding the reasons behind the formula. 3 of them mentioned both computational and affective properties, 10 of them wrote both computational and conceptual characteristics. One of the pre-service teachers wrote all these three characteristics.

The next open ended question was also on belief about learning mathematics. They were asked that how they know if one of their students has learned a math concept. 14 pre-service teachers wrote something related with applying and constructing relations with other concepts. 11 of them mentioned about giving correct answer to the questions. 7 of the pre-service teachers stated that "If I can explain to another person, I can say that I learn that math concept".

With the last question of "What do you think are the tree most important characteristics of a good math teacher?" pre-service teachers asked about their belief on which qualifications a good elementary mathematics teacher requires? 8 of pre-service teachers wrote about personal characteristics like being patient, hard working, positive etc. 15 mentioned about pedagogic characteristics like be strong on the subject, do appropriate measurement and give fair marks etc. 7 of the pre-service teachers wrote about both personal and pedagogic characteristics. 2 of the participants mentioned about both personal characteristics and general knowledge.

I can be deduced that for most of the questions it is seemed that pre-service teachers are at Platonist and problem solving level, but only some questions they still have instrumentalist view which can be stemmed from exam oriented view. For future researchers, replication of this study on broader sample of pre-service teacher might be valuable to see whether these findings can be generalized more broad sample.

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7. The effect of teacher characteristics on student mathematics achievement: TIMSS 2003

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In most of the education systems in the world, mathematics has a central place in the school curriculum since there is a consensus that it contributes to the intellectual development of individuals while preparing them to live as informed and functioning citizens in society (Cockroft Report, 1982). Due to this importance given to mathematics, considerable value is given to the role of teacher in mathematics classroom. The effect of teacher on student outcomes is evident in many models that identify the factors affecting students' mathematics related outcomes, e.g. Mathematics Teaching Cycle (Simon, 1997); Shavelson et al's model that points out the indicators for monitoring mathematics and science education (cf. Howie, 2003), The Model of Educational Opportunities developed by The Survey of Mathematics and Science Opportunities (SMSO) Project team (Cogan & Schmidt, 1999). Studies generally indicate that teacher-related factors such as gender (Dee, 2006), experience (Greenwald, Hedges and Laine, 1996; Mullis et al, 1997), level of education (Goldhaber and Brewer, 1997; Wayne and Youngs, 2003; Rivkin, Hanushek and Kain, 2005), instructional practices (Koehler and Grouws, 1992) have effects with various magnitudes on mathematics achievement of the students.

Many organizations around the world such as The International Association for the Evaluation of Educational Achievement (IEA), Organization for Economic Cooperation and Development (OECD), UNESCO and World Bank support the collection of information on the provision of education across developed and developing countries in different subject areas especially in mathematics, science and reading.

TIMSS (Trends in International Mathematics and Science Study) collects educational achievement data at the fourth and eighth grades to provide information about trends in performance over time together with extensive background information to determine the quality, quantity and content of instruction in mathematics and science. The TIMSS data set provides opportunities to researchers for dealing with various variables related with student, teacher, school and family, thus, making comparisons of patterns across classrooms with differing characteristics possible in a cross-cultural settings. TIMSS is repeated regularly in four-year cycle and TIMSS 2003 is the third round of this study.

Evaluating teacher characteristics and their impacts on student outcomes in different cultures might provide extensive information to educational policy makers. The information gathered will provide us the opportunity to criticize the traditional teaching practices in mathematics classes and be aware of the choices that should be made in mathematics teacher education programs and mathematics instruction at school.

The purpose of this study is to investigate mathematics teachers' characteristics, namely their gender, experience in teaching, job satisfaction, professional development, and classroom instructional activities, across Belgium (Flemish) and Netherlands TIMSS 2003 data and study the effects of these variables on students' mathematics achievement by building explanatory models through using hierarchical linear modeling techniques.

Methods

Research questions

The following research questions were addressed in this study:

1. How much do classes vary in their mean achievement in Belgium (Flemish) and Netherlands, separately?
2. Which factors at the teacher level have significant effects on the mathematics achievement of the students across Belgium (Flemish) and Netherlands?
3. How much variance in the mathematics achievement can be explained by the factors related to teacher characteristics?

Population and sample

The target population in TIMSS 2003 was all students enrolled in the upper of the two adjacent grades that contain the largest proportion of 13-year-olds at the time of testing. This grade level was intended to represent eight years of schooling counting from the first year of elementary schooling, and was the eighth grade in most countries. Sample was determined by a two-stage stratified cluster sample design. The first stage consists of a sample of schools; the second stage consists of a sample of one classroom from the target grade in sampled schools (Foy and Joncas, 2004). Among 48 participant countries in 8th grade level, Belgium (Flemish) and Netherlands were chosen in this analysis due to their higher achievement when compared to other EU countries. The rank of the countries, the number of classrooms and students participated in the study are given in table 1.

Table 1. Rank and number of classrooms and students in TIMSS for each country

Country	Rank of the Country	Number of Classrooms	Number of Students
Belgium (Flemish)	6	272	4970
Netherlands	7	130	3065

Instruments and variables

In this study, TIMSS 2003 data set, which was downloaded from the TIMSS website (http://timss.bc.edu/timss2003.html), was used. The teacher background questionnaire and the results of 8th grade mathematics achievement test were used to build the hierarchical linear models. The teacher questionnaire collected information about the teachers' preparation and professional development, their pedagogical activities, and the implemented curriculum (Chrostowski, 2004). In this study, the following variables were considered:

Table 2. Variables with their corresponding item in the questionnaire and scaling

Variables	Item	Scaling
Gender	Are you female or male?	Female: 1 Male:0
Experience	By the end of this school year, how many years will you have been teaching altogether?	Number of years
Job satisfaction	How would you characterize teacher job satisfaction following within your school?	Very high-High: 1

Development	In the past two years, have you participated in professional development in any of the following? a) Mathematics content b) Mathematics pedagogy/instruction c) Mathematics curriculum d) Integrating information technology into mathematics e) Improving students' critical thinking or problem solving skills f) Mathematics assessment	Number of courses participated 0-6
Review homework	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on reviewing homework?	0-100
Listen to presentation	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on listening to lecture-style?	0-100
Guided work	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on working problems with teacher guidance?	0-100
Independent work	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on working problems on their own without teacher guidance?	0-100
Re-teaching	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on listening to teacher re-teach and clarify content/procedures?	0-100
Tests and quizzes	In a typical week of mathematics lessons for the TIMSS class, what percentage of time do students spend on taking tests and quizzes?	0-100

Data analysis

In this study, explanatory models were built by using Hierarchical Linear Modelling (HLM) techniques due to the nested structure of the data and the sampling procedures used in data collection of TIMSS. HLM 6.05 was used in order to build a two-level HLM model which investigated the effects of factors related to teachers' characteristics and teachers' instructional practices on the mathematics achievement of the students. In the analysis, firstly a one-way ANOVA with random effects model was built in order to partition the variance within classes and between classes. Then for investigating the teacher effect on mathematics achievement of students, a random intercept model was built by adding the variables at level 2 (Raudenbush and Bryk, 2002). The equations of the model at level-1 and level-2 are as follows:

Level-1 Model
$$Y = \beta_0 + r$$

Level-2 Model
$$\beta_0 = \gamma_{00} + \gamma_{01}*(\text{Gender}) + \gamma_{02}*(\text{Experience}) + \gamma_{03}*(\text{Job satisfaction}) + \gamma_{04}*(\text{Development}) + \gamma_{05}*(\text{Review homework}) + \gamma_{06}*(\text{Listen to presentations}) + \gamma_{07}(\text{Guided work}) + \gamma_{08}*(\text{Independent work}) + \gamma_{09}*(\text{Re-teaching}) + \gamma_{10}*(\text{Tests and quizzes}) + u_0$$

In the data analysis, total student weight (TOTWGT) in the database was used at the first level after it was normalized and the parameter estimates were based on the average parameter estimates from separate HLM analyses of the five plausible values which were drawn at random from the conditional distribution of proficiency scores for each student due to the rotated booklet design in TIMSS.

Results and discussion

The one-way ANOVA with random effects model provided information about how much variation in the mathematics achievement of students had lied within and between classrooms. Between-class variances were calculated as 72 %, in both Belgium (Flemish) and Netherlands. This high value means that in these particular countries between-class differences in terms of mathematics achievement is great i.e. students within a class are more different from the other students across different classes in terms of mathematics achievement.

In order to determine the effects of teacher related factors on mathematics achievement, a two-level Hierarchical Linear Model was developed. The coefficients (γ_{ij}) and their standard errors are given in table 3.

Table 3. The coefficients and standard errors in Hierarchical Linear Models

	Belgium (Flemish)		Netherlands	
	Coefficient	Standard error	Coefficient	Standard error
Mean	533.52*	4.06	534.39*	5.32
Gender	-2.99	9.63	2.27	12.21
Experience	1.23*	0.40	0.24	0.58
Job satisfaction	24.54*	8.5	19.83	12.00
Development	3.84	2.16	0.30	3.43
Review homework	3.75*	0.89	3.08*	1.03
Listen to presentations	2.96*	0.91	5.23*	0.91
Guided work	3.02*	0.83	3.34*	0.82
Independent work	3.21*	0.84	3.46*	0.84
Re-teaching	3.69*	0.87	3.01	1.68
Tests and quizzes	4.99*	2.15	3.27*	1.58
Explained variance	24 %		21 %	

* Significant at .05 level

For both Belgium and Netherlands, the results show that gender had no significant effect on student math achievement. In the literature, the findings related with teacher's gender are not consistent and the issue is still unresolved. (Dee, 2006) It seems that there should be more in depth analysis in the related field before concluding whether the success in mathematics is related to the gender of the instructor or not.

Although it is expected that professional development has positive impact on student mathematics achievement, it was found that it had no significant effect in both countries. In the literature, there are inconsistent findings on whether extra qualifications make the teachers better or not. For example, while in most of the studies it was observed that extra qualifications related with mathematics and mathematics education had positive significant effect on the achievement of students (Wayne and Youngs, 2003), there are also studies show that teachers with graduate degrees had negative impact (Rivkin, Hanushek,& Kain, 2005).

Percentage of time spent on reviewing homework, listening to lecture-style presentations, working problems with teacher guidance, and working problems without teacher guidance have positive significant effect in both countries. Guided practice and independent practice are two important parts of an effective lesson (Rosenshine and Stevens, 1986) and guided practice followed by independent practice has important impact on student achievement. If metacognitive questions, that students can ask themselves or discuss as a whole class, are not considered in guided practice,

it becomes routine skills practice and does not improve student learning. The success of guided practice could be understood from the student success in independent practice. It is important that teacher could decide which method is best to use in a certain activity and how to guide and monitor the students and select the problems to work in class.

Giving tests and quizzes, which is one type of assessment, had also positive impact on math achievement in both countries. Tests and quizzes are useful in providing the teacher with feedback about students' progress, motivating the students, assessing the students' readiness for future learning. Although giving tests and quizzes may foster the students in studying, teachers should be careful while using them. There is a danger that some of the students may feel disheartened and upset as a result of low scores they got. Also the tests and quizzes should not be too time-consuming. The content of the tests and quizzes should be prepared carefully (Kyriacou, 1997).

The classes of more experienced teachers in Belgium were more successful. Literature also shows that teachers who have more than five years of experience are more effective teachers (Greenwald, Hedges, and Laine, 1996). However, it is not possible that all teaching is carried out by the experienced teachers. The effects of inexperienced teachers may be reduced if assistance is provided to new teachers.

Reteaching the content had positive significant effect on math achievement only in Belgium (Flemish) model. It is necessary in mathematics since mathematics can not be learned meaningfully without removing student difficulties in prior knowledge. Teachers should be qualified to explain a topic with different strategies to students with different abilities.

Job satisfaction had a significant and high impact on student achievement in Belgium (Flemish). The classes of teachers who had high job satisfaction were more successful. This is an expected result that these teachers are probably more enthusiastic about teaching and supporting the students.

These models explained the 24 % and 21 % of the variation in mathematics achievement of students in Belgium (Flemish) and Netherlands, respectively. A large amount of variance remained unexplained. This is probably due to the reason that only teacher related factors were taken into consideration. The student, family and school characteristics are also important in explaining mathematics achievement and they were not considered in the present study.

In conclusion, this study provides some conclusions about the effects of teacher characteristics on mathematics achievement of students. It was found that instructional practices, namely reviewing homework, listening to lecture-style presentation, working problems with teacher guidance and working problems on students' own without teacher guidance and tests and quizzes, have positive effects on student achievement. So teachers should be trained in these topics. Experimental studies should also be carried out to examine their effects more in depth in different cultures.

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8. Patterns in the first school years – main constraints

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Abstract

Authors suggest that several mathematical patterns must be addressed, in a systematic way, since an early age, given their key role in the development of algebraic thinking, amongst other aspects. Following this perspective, we developed several activities focusing on patterns of various kinds, involving children from 3 years of age. These activities revealed a set of tasks which are extremely complex and difficult for children. In this paper, by focusing on the pupils' own productions, we will discuss some of above-mentioned didactic proposals and the implication of the results.

Introduction

The starting point of the study we intend to present was a wider research project which gave way to a Master's dissertation (Ventura, 2008).

The problematic of such a research touches the confluence of three main vectors: i) children should live, since an early stage, mathematical experiences with patterns which are not worked much in Portuguese preschools; ii) information technology is ever more representative in society, even in children's daily lives, who, from an early age, familiarize themselves with these means. This is a process in which school hasn't had a significant role so far iii) multiculturalism is another reality which characterizes the Portuguese society in schools. Nevertheless, schools do not know how to handle this problem. This research admitted CD-ROM *"Images of Interculturalism in Preschool Education – Us and the Others The Others and Us"* (*"Imagens de Interculturalidade na Educação de Infância – Nós e os Outros"*) (Cabrita & Moderno, 2003) as the object of study. The CD-ROM focuses on several aspects: a) A literacy logic with and for the media; b) characteristics from different social realities such as the Portuguese, the PALOP (African countries having Portuguese as official language), gypsies and east European countries; c) didactic suggestions, namely about patterns, which cross the diverse domains in the communication and expression area – mathematics included. The main objective of this Master dissertation was to evaluate the impact of exploring this CD-ROM in the construction and/or development of technological competence, of a more effective multicultural conscience and intercultural sensitiveness and, finally, along with development of a sense of pattern in a group of preschool children.

This article will focus on patterns, more specifically, situations of success and constraints faced by children in preschool when solving tasks which involve the identification, reproduction, creation, continuation or gap-filling of patterns.

Theoretical framework

> *By using mathematics to organize and systematize our ideas about pattern, we discover a great secret: nature patterns do not exist solely for the rules which govern natural processes.* (Stewart, 1996: 11, our translation).

Working with patterns and finding the generalizing law(s) allows us to recognize order and to know and organize the world around us (NCTM, 2007). In a dynamic process, it also allows us to better and more effectively understand a series of other mathematical phenomena.

On the other hand, such activities demand a formal method of thinking, which they also help to develop. The principles of mathematical thinking emerge even before the child goes to school (Crucio & Schwartz, 1997), but it is unquestionable that there is a rapid development of mathematical reasoning when children go into a preschool classroom which provides them with adequate learning experiences. The discovery of regularities, replication, continuation, gap-filling of listening, visual, motor patterns, ..., activities which children should verbalize, represent and discuss, are part of this group (Papic & Mulligan, 2005; Waters, 2005).

The term "pattern" is used when we refer to a *disposition* or *arrangement* of numbers, forms, colours or sounds where we can find *regularities*. Such dispositions or arrangements have *logical rules* subjacent to them (Barros & Palhares, 1997; ME, 1997; Vale et al., 2006; Vale et al, 2009). More formally, when applying a *law of transformation* to a *module*, a *motive* or to a *term*, we obtain a *sequence* of the respective math objects in which it is possible to determine, at least, one *regularity*. The relationship between the several components of the pattern constitute the structure of the pattern which is in the heart of school mathematics (Papic & Mulligan, 2005).

Importance of preschool patterns

According to Hardy (2002), the study and construction of patterns attract and motivate children, and develop their creativity by appealing strongly to their aesthetic sense.

Several authors also argue that when children recognize and work with patterns, they learn to see and establish intra mathematical connections, as well as between maths and their daily lives and other areas (Barros & Palhares, 1997; ME, 1997; NCTM, 1998 e 2007; Palhares & Mamede, 2002).

On the other hand, the work with and about patterns facilitates acquiring and developing transversal mathematical capacities namely those related with representation, problem-solving, math communication, thinking and reasoning (Copley 2000; NCTM, 2007; Nummela & Rosengren, 1986; Payne & Huinker, 1993; Ponte et al, 2007; Vale et al, 2009).

In this aspect, Fox (2006) states that activities which involve patterns and understanding them, offer preschool children access to "elements of mathematical thinking which are not available to them in any other maths environment" (126, our translation). According to Barros and Palhares (1997), talking about relationships and forecasting what will happen develops thinking and reasoning, especially the logical one. Nickson (2000), on the other hand, values exploring patterns in the development of geometrical thinking.

According to Vale & Pimentel (2005) and Vale et al. (2009), working with patterns in preschool serves as a support to learning Algebra and to the development of algebraic thinking, namely by introducing and manipulating symbols instead of the

most varied math objects. Still according to Papic and Mulligan (2005), algebraic thinking in preschool may involve developing abilities where symbols are used to describe patterns. Lee and Freiman (2006) corroborate this idea saying that children, who understand mathematical patterns from an early stage, are in an excellent position to learn algebraic language and produce algebraic activities. Fox (2006), too, defends that activities involving patterns and relationships constitute a nucleus of acquisition of mathematical competencies, especially those related with algebra and functions. On the same line of thought, NCTM (2007) refers that algebraic concepts may improve and develop from preschool up to the second year of primary school.

Learning experiences with patterns

> "Adequate mathematical experiences stimulate children in exploring ideas related with patterns, forms, numbers and space, with increasing levels of profoundness" (NCTM, 2007: 83, our translation).

The first experiences given to children should involve classification, allowing them to act on the things which surround them, "relating and combining them according to any criteria, be it at the beginning within a criteria given by the characteristics of the objects (square, hard, smooth, red, etc.), as well as later, within an abstract criteria (democratic attitudes, ethical behaviour, etc.)" (Favéro, 2005: 108). Children should also be given tasks which allow them to display objects according to a certain order – series – by identifying differences and variations which characterize them (Hohmann & Weikart, 1997). Waters (2004) highlights the importance of recognizing and previewing sequences and of using the associated language.

Other learning experiences should be focused on identifying the regularities of the occurrences, forms, drawings and sets of numbers (NCTM, 1991). The work may begin by inviting the child to reproduce a pattern physically – jump/jump/stop, jump/jump/stop, ...) or by reproducing a sequence of sounds – high/low, high/low and then trying to express it in different ways (Palhares & Mamede, 2002). 'Reading' a pattern shown to a child using simple vocabulary (circle – square – circle – square– ...), asking children to reproduce that reading and to keep records of it take notes also allows them to acquire a proper vocabulary on patterns while becoming acquainted with the corresponding concepts. An activity room is the perfect environment to help children recognize, describe and reproduce regularities and patterns. Copying patterns made up of bead, pasta, cubes or other manipulative materials may help children to better understand the underlying concepts (Spodek & Saracho, 1998).

Tasks involving the continuation of patterns should also be considered. Forecasting what will come next are competencies the child should acquire from an early stage. But continuing frontward is just as important as doing it backwards. Gap-filling in both directions is a more demanding task, but it should not be forgotten.

Besides the discovery of the logical rule which underlies a certain pattern, it is also very important for children to develop patterns from their own imagination. (Barros & Palhares, 1997; Threlfall, 1999). Hohmann & Weikart (1997) consider this to be an activity which, additionally, the child enjoys performing – "they enjoy arranging things into sets and patterns in order to build something they want or need, such as a necklace made of alternated coloured buttons, or a row of cubes forming a ladder" (704, our translation).

These may develop into increasing or decreasing patterns which can be explored with seeds, cubes or other materials and dimensions. This kind of pattern is initiated

with an object, which represents the first term of the pattern, to which another object of the same species, bigger or smaller according to the established pattern, is added (Copley, 2000). This activity is a lot more demanding since it requires the creation of a module, a rule and its consistent application to that module.

It is very important for children to talk about what they are thinking and doing; so, educators should ask for their cooperation and invite them to share their ideas so that they may develop competencies in math communication. They should begin by using their own language, representations and symbols – forms of representation which are meaningful to them (Bay-Williams, 2001). And each pattern should, in turn, allow several representations (pictorial, symbolic, graphic, …) so that the child may easily identify the properties of such a configuration – it is a way of "helping children learn how to generalize and recognize patterns in ampler contexts" (NCTM, 1998: 1, our translation).

It is most important to perform the work with real and diverse material (Steen, 1990; Fox, 2006; NCTM, 2007). The educator has the responsibility of providing the child with books and stories with numbers and patterns; rhythmic music which have instructions of the "upward, downward", "inward, outward" type; games with rules, and problem-solving activities.

If children live the kind of experiences mentioned in this point in preschool, they shall be much better prepared to safely face the challenges which lie ahead of them at school later on, where it is evident that care is taken to involve students in identifying and exploring patterns (DEB, 2001; Ponte et al, 2007).

Method

A case-study was opted due to the objectives set by the research. It was developed under an investigation-action context as proposed and considered adequate namely by Bogdan & Biklen (1994), Cohen & Manion (1990), Coutinho & Chaves (2002), Lessard-Hébert et al (1994), Stake (1995) and Vale (2004). Given the scarce studies on this theme, in the above-mentioned context and theoretical framework, the study also assumed an exploratory nature, just as justified by Cabrita (1998).

The investigator who underwent the study was not the preschool teacher. Five children were chosen, between the ages of 3 and 4. Later, some parts of the study related to patterns were replicated under the same conditions, and an extension was introduced to other groups of children in preschool, 28 on the whole, slightly older and coming from various countries/realities. In this phase, undergraduate students from a degree in Preschool Education from a Portuguese university were involved in the experience.

The study was structured in two phases: 1) familiarization between the investigator and the group, through didactic experiences introducing the theme to be studied and 2) empiric phase, involving learning experiences centred namely on patterns, inspired on the afore-mentioned CD-ROM. These experiences were developed within a natural environment in the same kindergarten the children were attending. The investigator proposed the tasks, made sure the children understood them, and then the children developed them individual and autonomously.

Collection of the investigating material was essentially made, as suggested by Erlandson et al. (1993), Yin (1989), Jorgensen (1989), Pardal & Correia (1995) and Soares (2006), through:

- Direct and participative observation registered in a logbook, photographed and video-taped with all the children's behaviour and reactions to the proposals during the several phases of the process;

- Documents and artefacts produced by the children;
- More or less formal conversations held with them.

The material which was collected was subject to a content analysis oriented by categories coming from the objectives proposed by the study.

Regarding situations of success or difficulties involving the performance of the 16 task on patterns, we analysed:
- reproduction of patterns – orally, with manipulative materials, on paper;
- creation of patterns – without limitation of space, with delineation of space;
- continuation of patterns – frontwards.

In the extension of the study, some tasks were adapted and others created in order to explore situations which the main study revealed as being potentially interesting. Such was the case of reproducing patterns which had been presented orally, continuing backward and gap-filling.

Results

Following are some of the main results, structured according to pre-defined categories.

Success situations

Overall, the children did not reveal difficulty in reproducing patterns orally. In relation to the following sequence and after attributing a sound to each animal, the children verbalized for example, "*Mic-mic, mic-mic, moo, mic-mic, mic-mic, moo, mic-mic, mic-mic, moo*".

Figure 1: Example of a sequence to be verbalized

Reproducing sequences trough the use of manipulative material was also a success, as may be verified in the following example where pasta (in a sequence of two yellow and one blue) and beads (in a sequence of one blue and one white) were used.
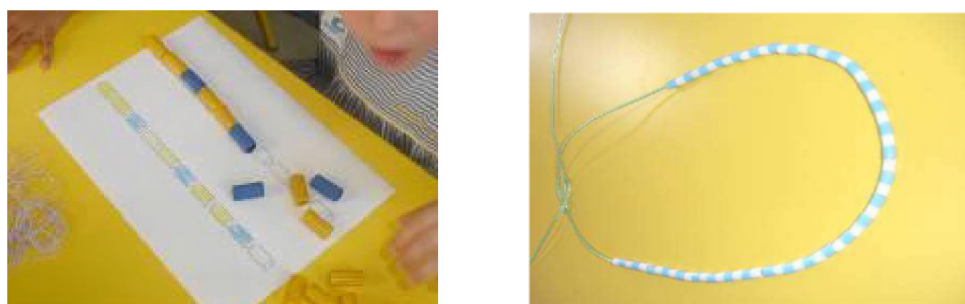
Figure 2: Reproducing patterns with manipulative materials

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An identical situation was verified with a reproduction on paper (or cloth), as may be illustrated in the following figure, even involving complex tasks (see the 3rd image).
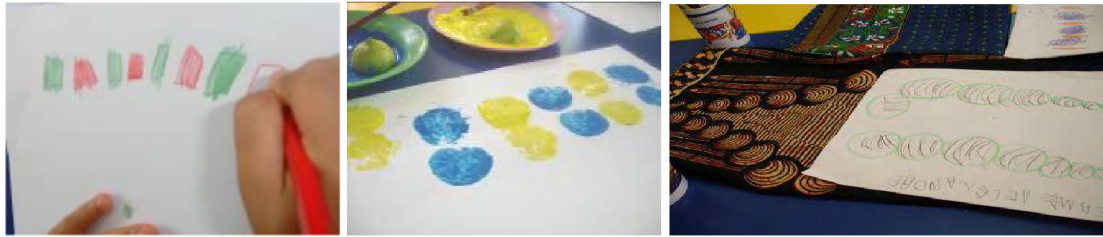
Figure 3: Reproducing patterns on paper

Most of the children did not reveal any difficulty in building patterns without a limited space, and some were very creative. See the first image with a pattern type ABBABBABB… made with dominoes placed in an unusual position; the second with a pattern type AABBAABBAABB made of cards with animals; the third with the decoration of a mask cut out on coloured paper, type ABABABABABAB, and the last one with a drawing of a pattern type ABBBABBBABBBABBB.

Figure 4: Creating patterns without a delineation of space

Curiously, gypsy children seem more creative in inventing patterns with beads to make necklaces.

Some children were also successful in creating patterns with a limited space, namely with 10 cylindrical configurations; with 11 circumferences and in a table of 7 columns by 5 lines.

The first image that follows shows a pattern type ABABABABAB ending in B. The second image though, shows a pattern type AABBAABBAA, where the child had no difficulty in finishing with AA.
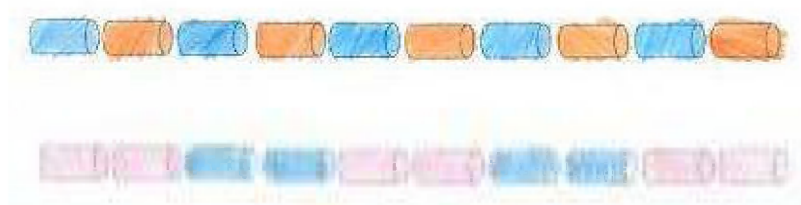
Figure 5: Creating patterns in 10 cylindrical spaces

In the following image, the child also did not have any problem in ending the sequence type ABABAB… with A. Less frequent was the solution presented in the following table. Actually, the child respected the law of formation by repeating the module type AB, even when he or she changed line.
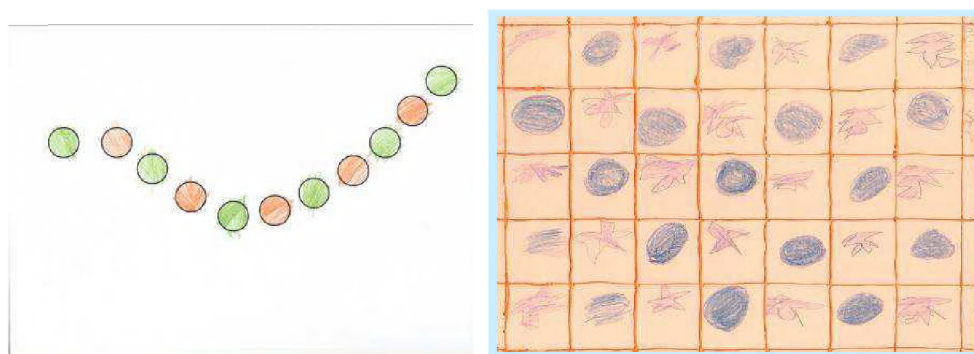
Figure 6: Creating patterns in 11 circular spaces and inside a 7x5 grid

Continuing patterns frontward, even the more complex such as the case of the 3rd and 4th rulers, did not reveal being difficult to the majority of the children.
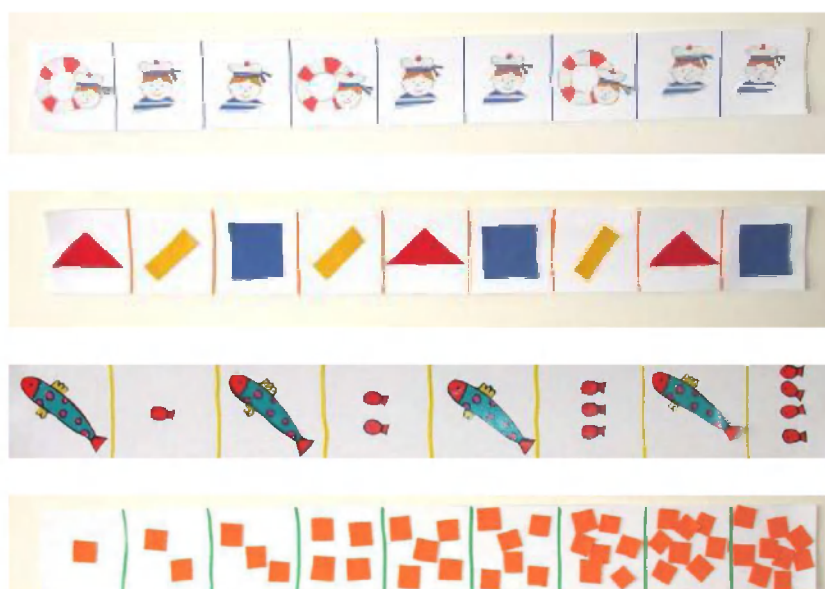
Figure 7: Continuing patterns frontward

Main constraints

Although most children revealed a positive performance, even surpassing our expectations, some activities revealed themselves complex and difficult. One of those activities has to do with the creation of patterns with delineation of space. For example, in relation to the model with 10 cylinders, some children left a space for painting. Note that the number of cylinders is not a multiple of the number of elements of the module (3) type AAB.
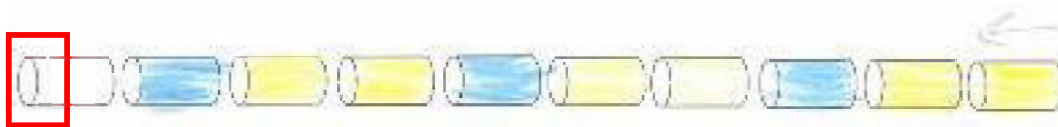
Figure 8: Difficulty in creating patterns in 10 cylindrical spaces

Also in relation to the model with 11 circles, some children added a circle, remaining with a multiple number of the number of elements of the module – *"I had to end in red because it is blue yellow red, blue yellow red"* (first image of the following figure). Others coloured over the "missing" circles (second image), without being able to explain why they did it and why they did not colour over the green only, as had been expected, in order to be able to "close" the pattern whose module is *violet, green, green.*
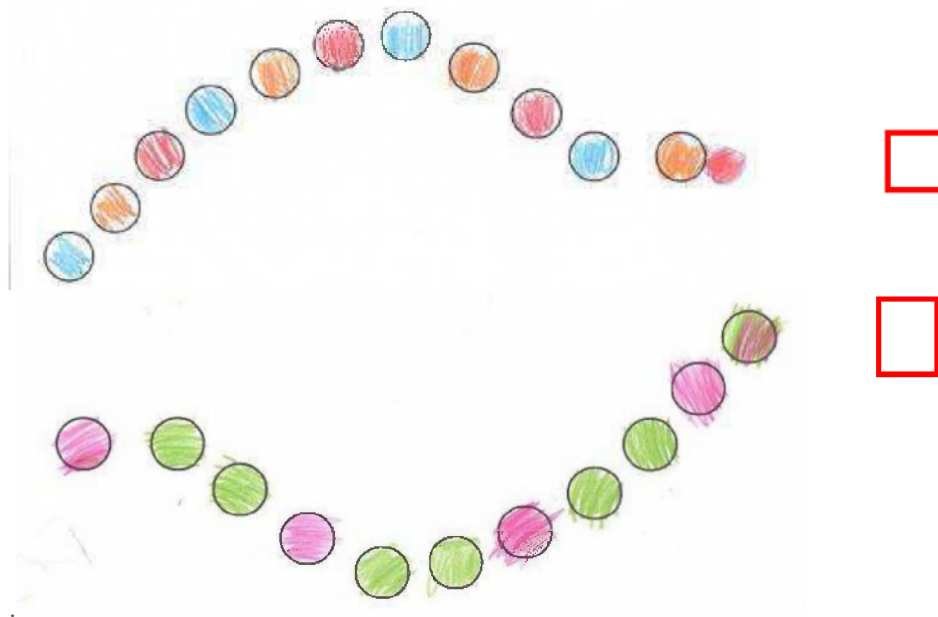
Figure 9: Difficulty in creating patterns in 11 circular spaces

In the reproduction and continuation of the pattern created before, with 20 plasticine balls, the children also "invented" some interesting solutions:
- Either the children abandon the balls which do not allow them to "close" the pattern – for example, in the first images of the following figure, the modules have, respectively, six elements (three green balls and three yellow balls) and three elements (one red ball and two green balls); as the nearest multiple to 20 is 18, two balls remain;

- Or they "invent" new balls – in the 3rd image, they "close" the pattern with 21 balls because the module has three elements.
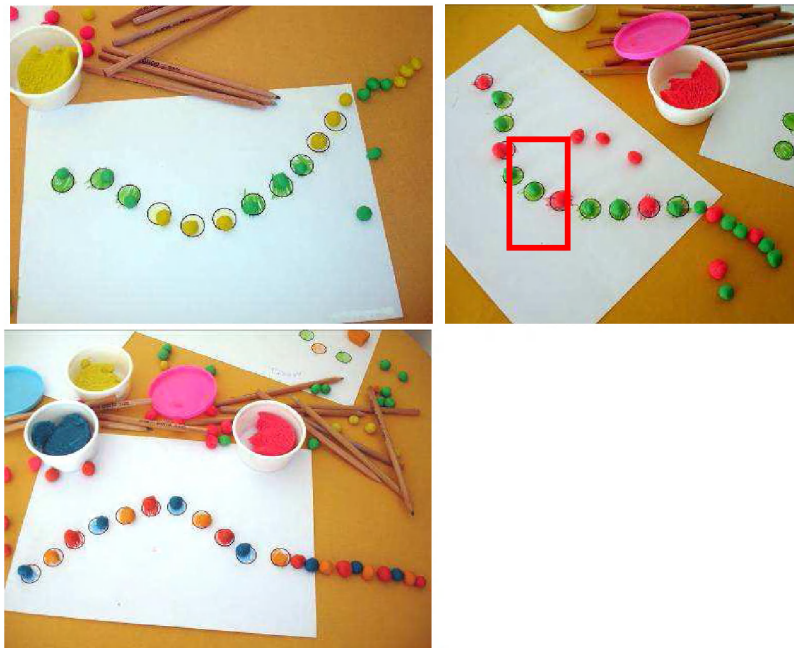
Figure 10: Difficulty in reproducing and continuing the former pattern with 20 plasticine balls

It is still interesting to verify the "creativity" of some children when faced with a 7x5 table. Some abandoned the pattern and made regularities in column; others "invented" a new column where the last element of the initial module would fit (following figure).
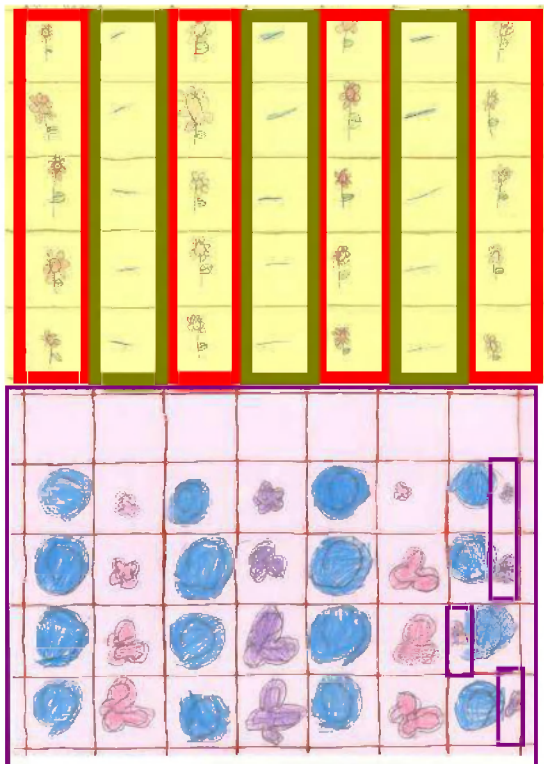
Figure 11: Difficulty in creating a pattern in a 7x5 table

They also appear to have difficulty in reproducing a pattern presented orally with sounds. For example, they heard *crack, clap, clap, crack, clap, clap, crack, clap, clap...* and they could not reproduce it with cards. Curiously, children from the PA-LOP seem to be more at ease in dealing with musical patterns.

Figure 12: Difficulty in reproducing a pattern presented orally

In what continuing backward is concerned, some children reproduce fully the pattern they read frontward. That is the case represented in the following figure – *It's one blue, one red and one yellow.*
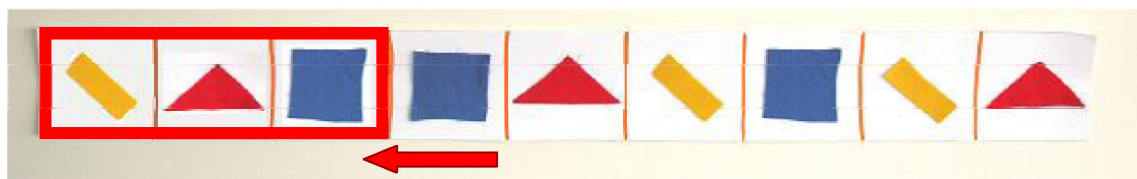
Figure 13: Difficulty in continuing the pattern backward

Finally, regarding the gap-filling of the empty spaces, such "logic" does not seem to apply to all directions. Actually, the following figure shows us that, from the 3 central images back, some children do not consider the '*boy boat*' but, instead, '*whale boy*', continuing the two first images. Even when asked to "read" the pattern orally, they thought it to be correct.

Figure 14: Difficulty in completing the pattern

Discussion of results and recommendations for future investigations

The investigation and experience undergone with the replication and extension of this study, allowed us to corroborate the findings of Hohmann & Weikart (1997), which state the work with patterns is greatly appreciated by children – "they enjoy arranging things into sets and patterns in order to build something they want or need, such as a necklace made of alternated coloured buttons or a row of cubes forming a ladder" (704, our translation).

The diversity of the material provided to children may also have contributed to this, as defended by several authors and/or organisms (Barros & Palhares, 1997; DEB, 2001; Fox, 2006; Moreira & Oliveira, 2003; NCTM, 2007; Palhares & Mamede, 2002).

It was also possible to confirm that the children already bring a great deal of mathematical knowledge to kindergarten (see, for example, Clements & Sarama, 2007; DEB, 2001; Fox, 2006; Moreira & Oliveira, 2003; NCTM, 2007), which allow them, with the least didactic intervention, to successfully and creatively solve a variety of tasks involving patterns. Some of these tasks include reading, reproduction (namely oral) and continuing frontward without a delineation of space. This did not only happen with repetitive patterns but also with growth patterns generally considered to be a lot more complex (Copley, 2000).

Concerning children's successful performance, this study revealed a very curious aspect we wish to highlight and which was not revealed in any other study – gypsy children seem to be more creative in making bead necklaces. The reason for this performance may be of a cultural nature, an issue which should be further studied. In fact, ornaments such as necklaces and bracelets are highly appreciated and worn by people from this ethnic group, a fact explored in the CD-ROM which served as basis for the investigation. (Cabrita & Moderno, 2003).

Still related to the cultural dimension, we consider it is also pertinent to investigate further whether, in fact, the easiness in reproducing patterns which were presented orally is extensive to other children from the PALOP, besides those whom we worked with. It is worth mentioning that music has always held an important space within these people's lives. Noteworthy is also the fact that this task revealed to have been very difficult for the majority of the children whom we worked with, and who came from other realities. Once again, we did not see these aspects referred nor discussed when revising the literature. We, therefore, recommend an investigation on this issue.

Another added value which came from this study is the fact that it allowed us to mention tasks which revealed themselves of a greater complexity, mainly:

- The continuation of patterns frontward, with delineation of space, when the number of such spaces is not a multiple of the number of elements of the module. Actually, the majority of the children only considered the pattern to be correct when

it "closed" with the last element of the module. When there is no space for that to happen, they come up with the most incredible ways of overcoming the difficulties they face. As for the particular case of tables, most of the children forget the pattern and only worry about keeping the regularities within the column;
- Continuing the pattern backwards. Most of the children place the elements of the module backward and in sequence, as though they were handling symmetry through reflection;
- Gap-filling. The majority of the children repeated the elements which came before and functioned as modules, inside the blank spaces. It was as though they were handling different patterns which only needed to be continued frontward.

The results bring up a vast number of possibilities and a need for a more systematic and endured investigation concerning mathematical issues in education. Patterns should be studied more specifically both from a scientific as well as a cultural point of view, along with their clear repercussions at a curricular level. Actually, since patterns play a key role in maths education, namely in the development of algebraic and geometric thinking, their treatment is imperative both at an initial and on a continuous formation level. We emphasise that particular attention should be given to the crucial aspects brought up by this research.

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9. Research in etnomathematics and its usefulness in mathematics education

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Introduction

Today's world is moulded by many phenomena, one of which is, no doubt, the increasing cultural diversity at a local level. We have clearly always had cultural diversity at the global level, but more and more we have coexistence of varied cultures and languages in the same territorial space. For example London has 300 languages represented in the mother tongue of children in basic education. This may be an extreme case, but it is possible that the extreme cases of today become the norm tomorrow.

In Portugal the situation is not so diverse. It has always had, clearly, residual elements of other languages and other cultures, as for example the Romani culture. But in the last twenty years this linguistic uniformity has been transformed into a diversity that is now familiar in Portuguese schools, particularly urban schools, including not only Lisbon and Porto, but also cities of small or average dimension. This Portugal is no longer the same it was forty years ago, became diverse on mother tongue, diverse on the birth country of its citizens, diverse on cultural aspects.

In the specific field of the mathematics and its education, if there is something that will allow us to face the problems and opportunities created by the increasing cultural diversity, that is Etnomathematics. It was Ubiratan D'Ambrósio who conceived the term, representing for him the mathematics of identifiable cultural groups, groups based on ethnicity, or on the professional occupation, even on age (D'Ambrósio, 2002).

Shirley proposes a classification of mathematics according to two criteria (formal-informal and pure-applied) which leads to four types of mathematics: academic (pure and formal); recreational (pure and informal); technical (applied and formal); ordinary daily life (applied and informal). He defends the incorporation of concepts and artefacts produced by some cultures, in each of the types of mathematics and also its incorporation in the classroom in order to allow multicultural connections to mathematics and therefore intrinsic wealth of the constructions that pupils elaborate. He also appeals to more research in order to obtain an important and diversified quantity of multicultural didactic tools (Shirley, 1995).

We think that the field of ordinary daily life mathematics is one where etnomathematics can have a more profound influence. For example, the work of Terezinha Nunes and colleagues on the skills shown by boys selling in the streets has made the mathematics education community aware of the difference between school mathematics (mostly academic, sometimes technical) and mathematics needed in ordinary daily life (Nunes, 1992). It also made all of us re-think mathematics education in a way or another.

Of course this perspective implies a change on mathematics education, moving towards a greater acceptance of the informal and the applied sides of mathematics. Gerdes (1996) is one of the stronger voices defending the incorporation in the curriculum of elements belonging to the socio-cultural environments of both pupils and teachers as starting points for the mathematical activities in the classroom, as factor of motivation for pupils as well as for teachers.

The research project DICA.Mat

In 2003, we have proposed, with other researchers, a project to the Foundation Calouste Gulbenkian. This project, named 'Cultural Diversity and Mathematical Learning' (DICA.Mat), allowed the grouping of three lines of study around the generic subject of etnomatematics, although with different specifications. One such study was about the Romani community, another about a phishing community, and yet another about basket weaving.

What we will try to bring here is a general overview of each study and some particular details that may illuminate the question of the usefulness of this kind of research, to mathematics education.

The Romani and their mental arithmetic

The Romani community in Portugal has a long history of persecution in various shapes. Most of the times it is just a local persecution, until they are out of the limits of the county. But there is a more general but less visible discrimination, which comes from school. Considering this, in this study, the following research questions were put forward:

- What are the strategies of mental arithmetic that the Romani community uses?
- How to characterize and interpret the process used in solving arithmetic problems?
- How to connect the informal arithmetic reasoning and school arithmetic, in an intercultural perspective?

In order to answer these questions, 17 Romani people were interviewed several times. In the interviews, some arithmetic problems were posed, but no constraints were given to the solving process. Naturally, solving them finally brought mental arithmetic on every instance. People interviewed were of different ages, from 12 to 65 years old, with one common characteristic, all of them went to the market fairs to sell. We will present only one brief transcription of one of the Romani interviewed, a very interesting case because of its connection to school practices.

Cristiana is 12 years old and she is on the third year of schooling. Usually this student helps her parents in the market fair in the mornings. She likes the contact with other people in the market, especially the possibility of meeting other Romani. She feels well when in the market. "It is our life", she says. In one occasion, she was posed a problem that induced her confusion with school practices. These practices are based on formal and written procedures, but she uses the same procedures adapted to informal and oral procedures. However, something goes badly.

- Cristiana, I want to buy to you 5 pieces at 5 euros and 50 cents, how much do I have to pay?
- That price doesn't exist.
- What you mean it doesn't exist?
- We don't have that kind of prices. It is only 5 euros, 10 euros and so on.
- But let us think there is. I would like you to do that calculation.
- Fifty cents plus fifty cents is one euro. Now another 50 cents plus 50 cents makes another euro. With 50 cents that makes 2 euros and fifty cents. Now 5 pieces at 5 euros is twenty-five. 25 euros plus 2 euros is 27 euros plus 50 cents is 27 euros and fifty cents.
- And if I give you two 20 euros bills, how much change will I get?
- Oh, Let me think. The bills make 40 euros...

- It's a minus operation I have to do. 5 to 10 is 5 and carry one, 7 to 10 is 3 and carry one, 2 to 4 is 2. It is 23 euros and 50 cents.
- Cristiana, think again.
- Then. It's 27 euros and 50 cents. If I pay from 30 euros I have to give 10 euros. But now I have to give 2 euros and 50 cents more. Then i have to give 12 euros and 50 cents (...) I don't know very well the minus operation.

It is clear that on the second calculation she has to perform, she starts by emulating the subtraction algorithm as it is traditionally performed in the Portuguese primary school. And she fails by and large. Then she resorts to her own mental strategies, and suddenly the result is correct and timely done too.

Romani usually forget school teachings. And that is not difficult to understand. What they learn doesn't give them the skills they need on their work. It would be easy to conclude that a special care and a different education should be given to Romani students. However, our claim is that the kind of learning Romani students clearly need, should be given also to other non-Romani students. After all, a focus on mental, oral and informal methods could be beneficial to all students, regardless of their community.

Basket weaving in the north of Portugal

Basket weaving is an activity that is in decline. It is nonetheless one kind of activity full of mathematical exploitations as the seminal work of Gerdes (1999; 2003) has shown. The following research questions were posed:
- What geometric models or patterns can we find, explicitly or implicitly, on basket weaving?
- How to characterize the processes of artefact construction considering geometric aspects only?

In regard to the geometric models or patterns found implicitly or explicitly in baskets, there are several patterns in the weaving of the base of the baskets such as:

a) ABAB (i.e., 1 or 2 strands);
b) ABAB twined (i.e., 2 strands):
c) ABBABB twined (i.e., 3 strands);
d) ABBA (a strategy used momentarily, as shown below); and
e) ABAB multiple (i.e., numerous strands).

The term, twined, means that the pattern, in structural terms, is characterized by a sequence of twists of the 2 or 3 strands making up the weave. The term, multiple, means that the basket maker uses several strands simultaneously; usually, this is a number of strands equal or superior to the number of spokes.

Figure 1. Basket patterns.

In the previous image (Figure 1), when the basket maker uses the pattern ABAB or BABA, the order is immaterial; he or she must pay attention to the number of spokes, that is, parity. If the number of spokes is even, and the basket maker uses only one strand, the pattern must be altered slightly.

The basket maker can avoid this by use of a simple strategy. At the end of each row, two spokes can be jumped, so that, momentarily, the pattern of ABAB is abandoned, and the ABBA pattern is used once. Also, in each row, the basket maker brings forward the point, at which the change from pattern ABAB to ABBA is made, in order to result in the spiral that is visible in the picture.

Had the basket maker not made this change, the base of the basket would appear undulated, because the strand of each spoke would pass always underneath or above in the same place in each row and would not have the necessary robustness to stand.

Considering the final product in terms of the mathematics present, we can say that the round base consists of 22 spokes, which shows 22 rotation symmetries. In the base, 22 axes of symmetry of reflection can be seen (but the centre of the base is not included).

Now considering the educational use: we think that the basket weaver problem is interesting itself and can be presented to students so that they try to solve and appreciate the way it is solved in practice; but all the artefacts produced in basket weaving are full of geometric aspects, especially regarding symmetry. We conceive therefore this as a potentially very good context to explore some geometric aspects of the mathematics curriculum.

Figure 2. Caulkers in Câmara de Lobos Bay, Madeira

Caulkers are constructers of small boats, in particular fishing boats. They are disappearing from the Portuguese range of professions as the profession of fisherman is also in decline, except for the industry that relies on large boats that are produced on large plants. In one fisherman community in Madeira, we found one caulker that still remembered the procedures before Portugal entered the European Union. The study started however with the following more general research questions:

- What mathematics can we find among the fisherman community of "Câmara de Lobos"?
- Is that mathematics compatible with mathematics curriculum of elementary education?

Portugal entered the European community (now European Union) in 1986. Apparently that is a very relevant date for the caulker, not only because new contracts became possible, but also because the new regulations forced him to change the way of constructing the boats.

But we have always constructed the boats in our heads... And then when the European Community begun to support us, then... The boats... Then we have started to use drawings... But the fishing boats were all made in the head... There were no drawings, there was nothing...

Mr. Jorge (one of the few remaining caulkers in Madeira) has only the 4th year of schooling. He left school when 10 years old, and went straight to a master caulker to learn the art. The techniques he has learned were perfected generation after generation and transmitted from master to apprentice by oral means and by modelling the master. But in 1986 he had to learn new ways.

- The base is the scale, a calculator because the calculations in the head sometimes fail and here nothing can fail. One centimetre, two, and everything is wrong (...) and the boat cannot sail. If it is with a calculator, the calculations are faster and more reliable. You need a lot of mathematics especially to make a new construction. There is the scale the descriptive memory, and the quantities.
- ...
- And then there is one thing, here, that is called the living waters, the perpendicular lines which is this line and this line, from here down, the wood has a certain weight, that's where the calculations are for, because if I put wood with the thickness of one and a half inches, then from the living waters up, then I have to put one inch only.

The caulker has once thought to go to the school to show children how to make a boat, its phases of construction and the different parts that constitute a boat, as well as the names for each part.

- You know... I have there the skeleton of a little boat, I have there the skeleton of a very small boat.
- And it was to take it to teach children how to start and how to mend and how to... And I forgot. And my son told me:
- Father, you told the teacher that you were going there one day and you didn't...
- Look, I forgot about it...

The caulker said to his son that he has forgotten about going to school. But was it really? Or he didn't have the right incentive? Apparently he was very excited about going to the school, so much that he even constructed a model to explain to children. We think that bringing professionals like this to the school is clearly an advantage to the students. They have so much pride on what they do that they will invest preparing. And certainly something can be learned from such activity, contributing for the humanization of mathematics

Final considerations

We think that research on etnomathematics is useful for mathematics education. Considering the examples above, there are three types of usefulness we conceive, one is the rethinking of education to and from particular groups, another is the consideration of new contexts for mathematics tasks and yet another the humanization of mathematics.

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10. Teacher-student interpersonal behaviour in secondary mathematics classes in Indonesia

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Abstract

This study was aimed at describing profiles of interpersonal behavior of Indonesian mathematics teachers and examining associations between students' perceptions of their mathematics teachers' interpersonal behavior and their motivation in learning mathematics. Data were collected with the Indonesian version of the *Questionnaire on Teacher Interaction* (QTI) and *Relative Autonomy Scales* (RAS). The framework of this study was based on the Model of Interpersonal Behaviour (MITB) that maps teacher conducts in terms of two dimensions: Influence (Dominance-Submission) and Proximity (Cooperation-Opposition). A total of 506 students (grade 7 to 9) from 16 classes in 5 public secondary schools in West Java and Jambi provinces, Indonesia, participated in the study. Analyses were conducted including descriptive, correlational and multilevel analysis. Results from the data analysis showed that: a good reliability and (validity) of the Indonesian QTI was found, teachers' ratings of their interpersonal behaviour were moderate in class perceptions, but were quite high in teachers' self-perception in both Proximity and Influence dimensions, associations exist between the two dimensions of interpersonal behaviour and student motivation in learning Mathematics. There was an indication that Indonesian mathematics teachers were generally perceived as directive.

Keywords: teacher-student interpersonal behaviour, student and teacher perceptions, secondary education.

Rationale

Many researchers in the domain of learning environment research have shown a substantial attention in conceptualizing, measuring and assessing perceptions of psychosocial features of the learning environment, particularly with respect to teacher-student interpersonal relationships (e.g. Fraser, 1998; Fraser & Walberg, 1991; Wubbels & Brekelmans, 1998). Numerous studies have indicated the importance of teacher-student relationships for student outcomes (Brekelmans, Wubbels & den Brok, 2002, den Brok, 2001; den Brok, Brekelmans & Wubbels, 2004; Henderson, Fisher & Fraser, 2000; Wubbels & Brekelmans, 1998; Wubbels, Brekelmans, den Brok & van Tartwijk, 2006).

Healthy teacher-student relationships can be considered one of the most important aspects in order to support teacher professional development because it can be considered a main component of classroom management (Doyle, 1986). Many experienced and inexperienced teachers encounter problems in regards to managing classes (Veenman, 1984). Therefore, healthy teacher-student interpersonal relationships become a requirement for both students and teachers to actively engage in learning activities (Brekelmans, Sleegers & Fraser, 2000; Wubbels & Levy, 1993). Teachers experiencing good interpersonal relationships with their students are argued to experi-

ence better satisfaction with their job and to prevent burn-out (Ben-Chaim & Zoller, 2001; Wubbels & Levy, 1993). Likewise, students' perceptions of teacher interpersonal behaviour are strongly related to their motivation and achievement in all subjects (den Brok et al, 2004; Wubbels & Brekelmans, 1998; Wubbels et al., 2006).

Former studies have indicated a similar importance of teacher-student relationships for Indonesian context (Margianti, Fraser, & Aldridge, 2001; 2002; 2004; Schibeci & Fraser, 1987; Soerjaningsih, Fraser, & Aldridge, 2002). Nonetheless, those studies were mainly focused on computer education and higher education. No studies examining teacher-student interpersonal behaviour in Indonesian secondary and (primary) education are known to the authors. The present study examined students' perceptions of their Mathematics teacher interpersonal behaviour and Mathematics teachers' perceptions of this behaviour by means of *the Indonesian Questionnaire on Teacher Interaction* (QTI). Mathematics classes were chosen because many students encounter problems with this subject; many of them consider this subject difficult to learn but it is very important to learn Mathematics because of its usefulness for life. Mathematics is a compulsory subject within Indonesian secondary education curricula. Therefore, all secondary students have to meet the minimum score in this subject in order to be able to pass the national exit exams.

In this study, Indonesian secondary Mathematics teachers were classified in terms of existing interpersonal profiles (Brekelmans, 1989). Next, students' and teachers' perceptions of interpersonal behaviours were described. Finally, associations between teacher interpersonal behaviour and students' motivation were assessed. The results of this study may have potential usefulness for teachers, teacher educators, teacher trainers and policy makers in Indonesia and neighbouring countries, which share similar cultures, by providing empirical evidence on Mathematics teaching behaviours that are common in the Indonesian (and East-Asian) context. Moreover, this study may provide an additional perspective to the knowledge base on teacher-student relationships taking a Southeast Asian perspective.

An interpersonal perspective on teacher behaviour

Most of us have dealt with teachers using different communication styles. Some teachers are intimidating and others friendly. Some are well-organized and others chaotic. A variety of interpersonal characteristics have served as basis for the conceptualisation of teacher interpersonal behaviour (see Wubbels, Creton & Hooymayers, 1985; Wubbels & Levy, 1993). The development of research on teacher interpersonal behaviour has been closely in line with the Systems Approach to Communication (Watzlawick, Beavin & Jackson, 1967) and the Interpersonal Theory of Personality (Leary, 1957) that form the basis for the Model of Interpersonal Teacher Behaviour (MITB) (Wubbels et al, 1985). The Systems Approach serves as a general framework for studying teacher-student relationships over a certain time period, while the MITB provides a basis for studying such relationships at a clear-cut time point (den Brok, 2001).

Departing from Leary's model, the Model for Interpersonal Behaviour was cosntructed as an adaptation to be applied to the classroom context (Wubbels, et al, 1985). In the model, the two interpersonal dimensions of Leary (1957) are called *Proximity* (Cooperation-Opposition, CO) and *Influence* (Dominance-Submission, DS). Each quadrant of the coordinate structure made up by the two dimensions represents two segments of behaviour. The sectors are defined upon the degree to which behaviours relate to the dimensions. For example, in the first quadrant contains two

different segments called Dominance-Cooperation (DC) and Cooperation-Dominance (CD). DC indicates actions that are characterized by high dominance and some co-operativeness (e.g. representing leadership behaviour) while CD represents actions with high cooperation and that are fairly dominant (e.g. representing helpful/friendly behaviour). Subsequently, each quadrant of the model consists of two behavioural sectors.

In the MITB, teacher-student interpersonal behaviour is mapped in the two-dimensional coordinate system. However, the model elaborates eight sectors of be-haviours instead of Leary's original sixteen. The eight sectors are named Leadership (DC), Helpful/Friendly (CD), Understanding (CS), Student Freedom (SC), Uncertain (SO), Dissatisfied (OS), Admonishing (OD) and Strict (DO). The graphic representation of the model can be seen below.
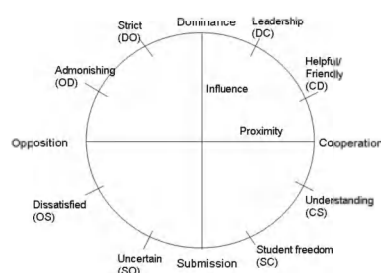
Figure 1. The model for interpersonal teacher behaviour (Wubbels, & Levy, 1993).

Based on the MITB, Wubbels and his colleagues (1985) pioneered the construction of an instrument to operationalise teacher-student interpersonal relationships, the *Questionnaire on Teacher Interaction* (QTI) for Dutch context. The instrument shares the exact scenery of the MITB, attaching the two dimensions of Influence and Proximity as well as the eight scales (sectors) of interpersonal behaviours (den Brok, Bergen & Brekelmans, 2006). Not so long after the emergence of the Dutch version, the American version of QTI was constructed (Wubbels & Levy, 1991). Based on this version, a more economical version of the QTI was constructed for the Australian context (Henderson, Fisher & Fraser, 2000). Later, the American and the Australian versions became the precedent for researchers in other countries to develop their own countries' version. Firstly, the Australian version was used in Singapore and Hong Kong without translation and adaptation (e.g. den Brok, Fisher, Brekelmans, Wubbels, & Rickards, 2006; Fisher, Goh, Wong, & Rickards, 1997). Afterwards, some versions that followed the Australian edition were those used in Brunei (Scott & Fisher, 2000), Canada (Lapointe, Pilote, & Legault, 1999), Hong Kong (Yuen, 1999), Korea (Kim, Fisher, & Fraser, 2000), Fiji (Coll, Taylor, Fisher & Ali, 2000) and Indonesia (Soer-janingsih, Fraser, & Aldridge, 2002). Versions that were based upon the American version were those created in Israel (Kremer-Hayon & Wubbels, 1992), United Kingdom (Harkin, Davis, & Turner, 1999), the Philippines (Oberholster, 2001) Slovakia (Gavora, Marek, & den Brok, 2005), Turkey (Telli,den Brok & Cakiroglu 2007a) and Greece (Kyriakides, 2005).

Some researchers have reported intercultural and cross-cultural psychometric properties of the questionnaire (e.g. den Brok, et al., 2003b, 2003c; den Brok, et al., 2006b; Fisher & Rickard, 2000). In general, foreign versions of the QTI offer good results and are comparable to the original Dutch and American editions provided that

the development process followed a series of steps extending translating and back-translating it (Fraser, 2002). Similarly, a recent study revealed that the instrument is culturally sensitive. Den Brok and his colleagues (2006a) argued that in cross-cultural comparisons, the differences of empirical scale positions compared to the hypothesized ones may expected. Furthermore, it was found that some scales occupied different distances to the circle centre or even shifts in counter clockwise direction within and between countries. Nevertheless, in all countries the two dimensions could be adequately and closely replicated. Consequently, the QTI cannot be compared between countries at the scale level, but they can be compared at the dimension level. After having a deep look into the nature of the QTI, next we will discuss information mapped out by this unique instrument.

Prior research using the questionnaire on teacher interaction

Research with the QTI has contributed significantly to our understanding of complex interplay of teaching in classroom contexts. The most apparent triumph ever documented is that the instrument has been useful to map different teachers' interpersonal styles that are transferable to different cultural conditions. However, research on the QTI as a feedback instrument for teachers is still inadequate (see Wubbels & Brekelmans, 2005 for a detail review). Next, some scholars have found that the different interpersonal styles may produce different student outcomes (affective and cognitive). However, it is important to note that there are various variables that affect students' perceptions of their teachers' interpersonal conducts. Those three issues will be elaborated in the following sections.

Interpersonal behaviour styles: A typology

As mentioned earlier, the QTI consists of a teacher version and a student version. Concerning the teacher version, teachers are asked to indicate a teacher ideal and a teacher self-perception. Based on information gathered from teachers, it is possible to make teacher profiles. The figure below represents possible profiles of a teacher.
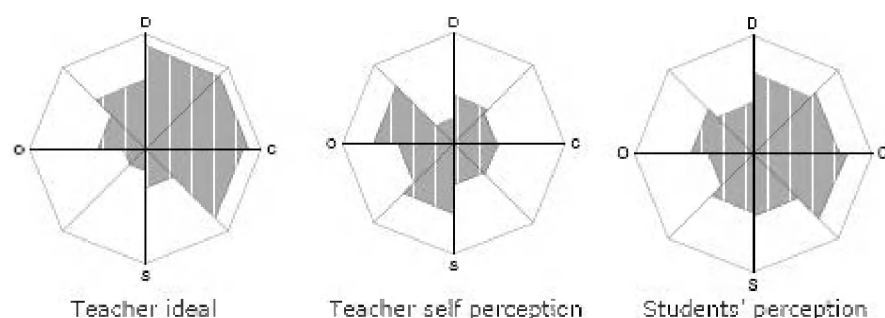
Figure 2. Illustration of profiles of a teacher (Source: Brekelmans, et al., 2006)

Brekelmans, Levy & Rodriguez (1993) constructed a typology of teacher interpersonal styles using cluster analysis. Based on observational studies, they identified eight interpersonal types for Dutch and American teachers that can be described as follows.
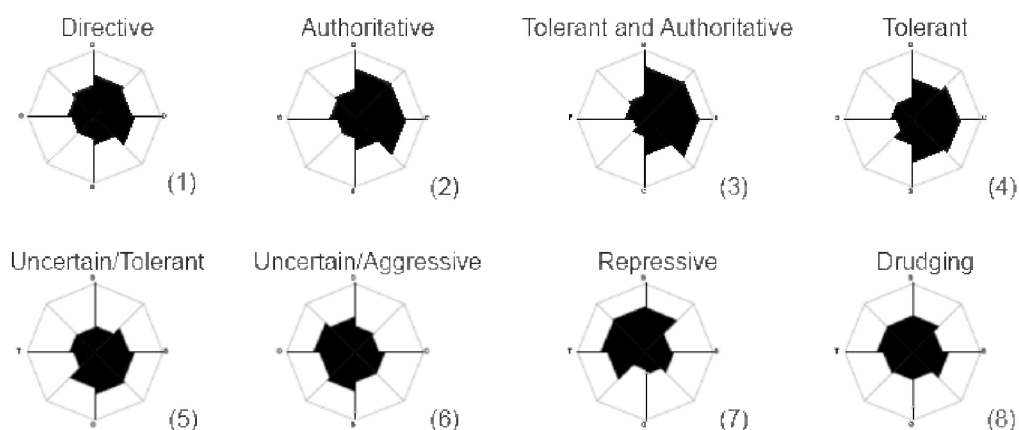
Figure 3. Profiles of teacher interpersonal behaviour. (Source: Brekelmans, et al., 1993)

Amongst all the mentioned types, Directive, Authoritative, Tolerant and Tolerant/Authoritative were found to be the representatives of most common interactions and an activity-based learning atmosphere that associates positively with students' engagement and motivation in classrooms (Brekelmans, et al., 2000). Although all eight types were found in Dutch and American classrooms with a similar frequency of occurrence, the types were found in other countries with different frequencies of occurrence. For example, Authoritative, Tolerant/Authoritative and Directive tend to be the only existing styles of secondary teachers in countries like Australia, Singapore and Brunei (den Brok, Fisher, Brekelmans, Rickards, Wubbels, Levy, & Waldrip, 2003a). However, recent research in primary education in Australia has shown a rather different finding (Fisher, Waldrip, Dorman, & den Brok, 2007). This research confirmed that earlier classifications only partially apply to the Australian situation in primary education. Six distinct types rather than eight appeared and only three of them resembled previously found profiles (e.g. Tolerant/Authoritative, Drudging and Repressive). This suggests that primary teachers in Australia might have different interpersonal styles compared to secondary teachers as they realize different classroom climates. In general, however, there is an indication that the typology is comparatively stable and assignable to other countries. Nonetheless, differences to some extent are expected as various profiles can be found in different classes of teachers (Wubbels & Levy, 1993). In addition, teachers seem to change from type to type over the period of their teaching careers (Brekelmans et al., 2002).

Research on students' and teachers' perceptions of interpersonal behavior

The use of student perceptions in research has been argued to be a valuable source of information on the learning environment. Its underlying perspective to this argument is the constructivist claim that individuals construct their own personal knowledge and views of reality. Given this assumption, it is then clear that each student's perception relative to learning situations should be very important to teachers (den Brok, Bergen, Stahl & Brekelmans, 2004). The ways in which students perceive, interpret and process information in the instructional setting are argued to be more important than teacher actions in determining what students have to learn. Thus, student perceptions are an ultimate determinant of instructional behaviour on students learning (Shuel, 1996).

With respect to the use of perceptions in classroom research, particularly with respect to teacher-student interpersonal behaviour, it has been well documented that students' perceptions of their teachers' interpersonal behaviour were correlated with their affective learning outcomes, to several student, class, teacher background characteristics and to the subject taught. Additionally, several teacher, student and class characteristics showed statistically significant associations with students' perceptions of teacher Influence and Proximity (Telli, 2006). Many researchers have found associations between interpersonal behaviour and affective outcomes, with different degrees of effect of the two dimensions. After having conducted a study in physics classrooms, Brekelmans and Wubbels (1991) discovered a clear association between Proximity (CO) and student motivation. A few years later, Wubbels and Brekelmans (1997) found that current Dutch teachers tended to be less dominant and more cooperative than a decade earlier. Similarly, den Brok (2001) found a strong connection between teacher interpersonal behaviour, particularly the Proximity dimension, and affective outcomes such as pleasure, relevance, confidence and effort in English as a Foreign Language (EFL) classrooms. Focusing on the scale level and relationships with affective domain, van Amelsvoort (1999) found that Helpful/Friendly and Understanding behaviours correlate positively with students' pleasure, relevance, confidence and effort. In addition, Brekelmans (1989) found that Authoritative and Directive teachers tended to have the most positive effects on students' attitude. Overall, research shows that the Proximity (CO) dimension has a stronger effect on affective outcomes than the Influence dimension (DS) (Brekelmans & Wubbels, 1991). Moreover, teacher behaviour that share features of authoritative and tolerant tends to result in higher affective outcomes.

Other studies showing the importance of interpersonal behaviour on affective outcomes from all over the world are observable. The research of den Brok, Levy, Brekelmans and Wubbels (2005) showed that there was a positive and strong effect between Proximity dimensions and all subject-related attitudes variables (pleasure, relevance, confidence and effort). Moreover, they also found a positive effect of Influence dimension on pleasure, relevance and effort. They concluded that teacher interpersonal behaviour has a significant effect on student motivation. This study confirmed the previous one showing that both dimensions were positively related with affective outcomes (den Brok, Brekelmans & Wubbels, 2004). Similarly, a study in Turkey showed a positive relationship between interpersonal behaviour and subject-related attitudes (Telli, den Brok & Cakiroglu, 2007b). Likewise, research in secondary education in India showed that both teacher Influence and Proximity were positively associated with students' attitudes (den Brok, Fisher, & Koul, 2005). A similar finding was also evident in a Brunei primary education sample, in which strong and positive effects of both dimensions on students' enjoyment of their science class was found (den Brok, Fisher, Scott, 2005). In addition, a study in Canadian secondary schools supported the evidence of the positive effects of interpersonal behaviour on student motivation (Lapointe, Legault, & Batiste, 2005). Also, some current research indicated the importance of interpersonal behaviour on other affective outcomes. Van Petegem, Aelterman, Rosseel and Creemers (2008) found that interpersonal behaviour of Belgian language teachers is a strong predictor of students' wellbeing. They concluded that tolerant/discipline teachers were correlated positively with students' wellbeing. In the same period, Quek, & Wong et al (2007) found positive relationships between scales of the QTI and students' enjoyment and attitude toward project work in Singapore. Likewise, Henderson and Fisher (2008) discovered a positive relationship between several aspects of interpersonal behaviour and students' attitudinal out-

comes in Australian vocational education. However, this consistent pattern is not always the case when we look at cognitive results.

Unlike the findings above, the association between interpersonal behaviour and cognitive outcomes shows an inconsistent pattern. There is evidence that Influence strongly associates with cognitive outcomes. For example, den Brok, Brekelmans & Wubbels (2004) reported that students' perceptions of teachers' influence related positively with their physics test results. Likewise, Henderson (1995) found a positive correlation between teachers' leadership and students' cognitive achievement. Yet, positive correlation between Proximity and cognitive results were also noticeable. Particularly, Proximity like behaviours such as Helpful/Friendly, Understanding and Student Freedom were consecutively found to be associated with cognitive outcomes (Goh, 1994; Henderson, 1995; Evans, 1998). Although both dimensions seem to associate positively with cognitive outcomes, there is no indication that the correlation is linear. Some researchers found no relationships between the two dimensions with student achievement (Wubbels, Brekelmans, den Brok & van Tartwijk, 2006). Regarding the interpersonal profile styles and their relationships with student performance, Brekelmans (1989) found that Repressive behaviour resulted in the highest score on student achievement, with Tolerant and Directive profiles coming in second place. In contrast, Uncertain/Tolerant and Uncertain/Aggressive teachers were found to result in the lowest student performance.

Some researchers have included teachers' perceptions to gather information about their interpersonal behaviour. However, research in this line is still scarce (den Brok, 2001). A few studies are found in which students' and teachers' perceptions were compared with respect to the two dimensions of interpersonal behaviour. In general, these studies indicated that students' perceptions of Influence and Proximity were lower than teacher perceptions of their own behaviour (den Brok, 2001; Rickards & Fisher, 1998; van Oord & den Brok, 2004). On average, teachers reported higher scores of their own leading, helpful/friendly and understanding behaviour than did their students. In contrast, teachers rated themselves lower on their own uncertain, dissatisfied and admonishing behaviour than did their students (e.g. den Brok et al., 2002; Fisher & Rickards, 1999; Rickards & Fisher, 2000; Wubbels, Brekelmans & Hooymayers, 1992). Other studies also indicated higher teacher than student perceptions of strict behaviour, whereas teachers reported lower perceptions of their own student freedom behaviour (Fisher & Rickards, 1999; Rickards & Fisher, 2000). Overall, there seems to be a pattern that behaviours for which higher teachers' perceptions than student perceptions have found (leading, helpful/friendly and understanding) are positively associated with student motivation and achievement. In contrast, behaviours for which lower teacher than student perceptions (student freedom) were found, are negatively related to student motivation and achievement (Wubbels & Brekelmans, 2005).

General features of Indonesian cultures

In this study, we intended to utilize an earlier developed Indonesian version of the QTI, as well as the Relative Autonomy Scales (RAS) for measuring student motivation to learn, to a relatively large sample from different regions in Indonesia. No research known to the authors has been conducted with these instruments in the regions. As mentioned earlier, the QTI was used for university students, but no studies were found in primary or secondary education. A few studies in the neighbouring countries such as Brunei, Singapore, Korea and the Philippines were found (e.g. Kim Fisher &

Fraser, 2000; Oberholster, 2001; Scott & Fisher, 2000). Although those countries share similar cultures with Indonesia to some extent, clear differences regarding interpersonal interaction between countries can be observed.

Indonesian society is characterized by a very high Power Distance Index (Hofstede, 1991), indicating a high level of inequality of power and wealth within the society. Also, Indonesian society has a high Uncertainty Avoidance Index (Hofstede, 1991), illustrating a low level of tolerance for uncertainty and ambiguity. The combination of these two high scores generate societies that allow inequalities of power and wealth to grow within society, while strict rules, regulations, policies and controls have been implemented to minimize the amount of uncertainty. In contrast, Indonesia has a very low ranking regarding Individualism. This indicates that the society is, to a great extent, collectivist (Hofstede, 1991). The collective nature of Indonesian society resembles a *"high contact"* feature, in which people express substantial amount of interpersonal closeness (Hall, 1966). Classroom context, particularly, might reflect the unique features of Indonesian society because classroom can be regarded a social unit within the society.

No empirical evidence is available whether similar teacher interpersonal styles as found in the Netherlands and USA can be found in Indonesia. It is inconclusive whether or not Indonesian students' perceptions of their teachers' interpersonal styles are related to cognitive and affective outcomes. If the associations between the two can be found, it remains unknown to what extent these correlations might be similar to other research in other countries. Therefore, the present study was conducted with two objectives in mind. First, we aimed at investigating the extent to which typologies found in earlier studies also apply to a sample of Indonesian Mathematics secondary school teachers, by gathering perceptions from both students and teachers. Second, we examined whether associations exist between teacher-student interpersonal behavior and students' relative autonomy in learning Mathematics.

Research questions

1. What distribution of teacher interpersonal profiles can be found in a sample of Indonesian secondary school teachers?
   1.a. What distribution of teacher interpersonal profiles can be found in class perceptions of Indonesian secondary classes?
   1.b. What distribution of teacher interpersonal profiles can be determined in teacher self-perceptions of Indonesian secondary classes?

2. Are there correlations between students' perceptions of teacher interpersonal behavior and their relative autonomy motivation in learning Mathematics?

Method

Participants

The participants of this study were 506 students (grades 7-9) from 5 public schools in two provinces in Indonesia (West Java and Jambi). Public schools were chosen because they have implemented similar curricula across the nation, which make them easier to compare. Data from the study were collected from 16 classes taught by 11 Mathematics teachers. The samples were selected conveniently. The composition of the students comprised 232 (45.8%) boys and 274 (54.2%) girls. Of the students, 212

(41.8%) students were in grade 7, 162 (32.2%) students were in grade 8 and 132 (26%) students were in grade 9. Class size in the schools varied from 12 to 39 students, with an average of 32 students. A total number of 7 (63.6%) male and 4 (36.4%) female teachers participated in the study. Teachers' professional experiences varied from 1 to more than 30 years.

Instrumentation

All students responded to two sets of questionnaires, namely the Indonesian version of the *Questionnaire on Teacher Interaction* (QTI) and the *Relative Autonomy Scales* (Vansteenkiste, Simons, Lens Sheldon and Deci, 2004). In this study, the latter measure was used for the purpose of checking predictive validity of the QTI. Teachers responded to the QTI-self perception version and their responses were used to gather information about their perceptions concerning interpersonal interaction with their students.

The reliability and validity of the Indonesian QTI has been examined in the previous research (authors, in progress) and suggest good quality of the instrument. For the present sample, the quality of the instrument was checked in a number of ways. First, internal consistencies were calculated as a measure of reliability. Next, the amount of variance at the class level was computed through Intra-class correlation by means of multilevel intra-class correlation coefficients (Snijders & Bosker, 1999). Cronbach's alpha for the various QTI scales ranged between 0.60 (Strict) and 0.75 (Leadership) at the individual student level and 0.76 (Strict) to 0.95 (Leadership and Helpful Friendly) at the class level. The amount of variance in scale scores at the class level ranged from 0.04 (Understanding, Admonishing and Strict) to 0.32 (Helpful Friendly). The results indicate that the instrument is reliable and generally able to differentiate between classes. However, the intra-class correlation coefficients are low for Understanding, Admonishing and Strict scales. This suggests that the data suffers from low variability for these behavioral sectors, at least at the class level. Exploratory factor analysis showed the existence of the two dimensions which represent Influence and Proximity. With respect to teacher data, Cronbach's alpha coefficients ranged between 0.52 (Student freedom) and 0.80 (Understanding). No further validity analyses were computed for teacher data due to the limited numbers of teacher respondents.

Table 1. Typical items for the Indonesian QTI scales.

Scale		Example of items Student version	Teacher version
DC	Leadership	This teacher teaches enthusiastically	I teach enthusiastically
CD	Helpful/Friendly	This teacher is friendly	I am a friendly teacher
CS	Understanding	This teacher trusts us	I trust students
SC	Student Freedom	This teacher gives us freedom in class	I give students freedom in class
SO	Uncertain	This teacher is often uncertain	I am often uncertain
OS	Dissatisfied	This teacher thinks we cheat	I think students like cheating
OD	Admonishing	This teacher looks down on us	I look down on students
DO	Strict	This teacher is very discipline	I am a very discipline teacher

Table 2. Internal consistencies (Cronbach's Alpha) and intra-class correlations (ICC) of QTI scales.

Scale	Student (n=506)	Cronbach Class (n=16)	Teacher self-perception (n=11)	ICC
Leadership	0.75	0.95	0.78	0.23
Helpful	0.72	0.95	0.67	0.32
Understanding	0.72	0.90	0.80	0.04
Stud.Freedom.	0.61	0.86	0.54	0.16
Uncertain	0.66	0.85	0.66	0.04
Dissatisfied	0.72	0.87	0.56	0.13
Admonishing	0.77	0.89	0.60	0.04
Strict	0.60	0.76	0.52	0.04

Another measure used in this study was the *Relative Autonomy Scales* (RAS). This instrument was originally constructed for the Flemish context and consisted of 4-point scales to asses the extent to which students engaged in learning for 4 various reasons, namely external motivation (caused by external forces or pressures, e.g., "I study Math because others told me to so"), introjected motivation (derived from internal forces like guilt or the intention to maintain one's self esteem, e.g., "I study Math because I would feel guilty if I don't do it"), identified motivation (indicating one's self-endorsed values, e.g., "I study Math because I find it important for me") and intrinsic motivation (triggered by intrinsic pressures for the shake of enjoyment, e.g., "I study Math because I like it") (Vansteenkiste, et al., 2004). In this study, the Indonesian RAS was adapted for use in secondary education. Reliability and average scale inter correlations of the Indonesian version can be seen on Table 3.

Table 3. Relative autonomy scales, typical items, internal consistencies (Cronbach's alpha) and average correlation between Relative autonomy scales

Motivational scale (n=506)	Typical items	Cronbach alpha	Average correlation between scales
Extrinsic	I study this subject because my parents expect me to do so.	0.65	0.19
Introjected	I study this subject because would feel ashamed if I don't do so.	0.63	0.34
Identified	I study this subject because it's personally important to me.	0.72	0.39
Intrinsic	I study this subject because I enjoy doing it.	0.76	0.37

Data analysis

To obtain a sample (country) description of the interpersonal behaviour of Mathematics teachers as perceived by their students, we computed mean scores of scales and dimensions and standard deviations of the QTI. Next, these averages were transformed into a graphical profile. The same procedure was also applied to teacher data set. Then, students' perceptions on the QTI scales were aggregated to the class level prior to comparing it to the existing interpersonal behaviour related typology (Brekelmans, 1989). In order to examine the associations between students' perceptions of their teacher interpersonal behaviour and motivation towards Mathematic, correlational analysis was performed (only significant findings were reported). In addition, Multilevel Analysis was performed on the four motivational scales with QTI dimensions as predictors.

Results

General profiles of Indonesian teacher interpersonal behavior

To obtain the average profile of teachers in the sample, a general descriptive analysis was computed. The mean scores and standard deviations of each QTI scale can be seen on the table below.

Table 4. Mean scores and standard deviations (SD) of the QTI scales for students and teacher data.

Scale	Student data (n=506, classes=11)		Teacher data (n=11)	
	Mean	SD	Mean	SD
DC Leadership	0.69	0.14	0.77	0.13
CD Helpful/Friendly	0.62	0.15	0.69	0.12
CS Understanding	0.65	0.14	0.78	0.14
SC Student Freedom	0.43	0.13	0.39	0.08
SO Uncertain	0.40	0.14	0.27	0.10
OS Dissatisfied	0.43	0.16	0.38	0.14
OD Admonishing	0.40	0.12	0.29	0.12
DO Strict	0.60	0.91	0.60	0.12
DS Influence	0.39	0.26	0.58	0.26
CO Proximity	0.48	0.46	0.85	0.36

Graphical representations of student perceptions were constructed and the results can be seen in Figure 4. The results of the study showed that students generally perceived that their Mathematics teachers demonstrated more cooperative behaviors (Leadership, Helpful/Friendly and Understanding) than hostility behaviors (Uncertain, Dissatisfied, Admonishing). However, the Strict scale was also rated quite high by students and came fourth after the three mentioned cooperative behaviors. This indicates that students experienced teachers' strictness quite frequent in combination with the three cooperative behaviors.

With respect to the two dimensions of teacher interpersonal behavior (see Figure 4), it can be seen that students perceived their teachers as moderately dominant

(DS=0.39)[22] and somewhat cooperative (CO=0.48). This indicates that both dominant as well as cooperative behaviors were displayed by Indonesian Mathematics teachers. Based on students' perceptions, the degree of Indonesian teacher cooperation and dominance altogether were moderate (< 0.50). The results of Figure 4 generally represent the profile of a Directive teacher. The characteristics of this type of teachers are well-structured, task-oriented, organized efficiently, complete all lessons on time, dominates class discussion, holds student interest, not close to students, occasionally friendly and understanding, have high standards and are demanding, gets angry at times, remind classes to work, likes to call on misbehaviour and on inattentive students (Brekelmans et al., 1993).
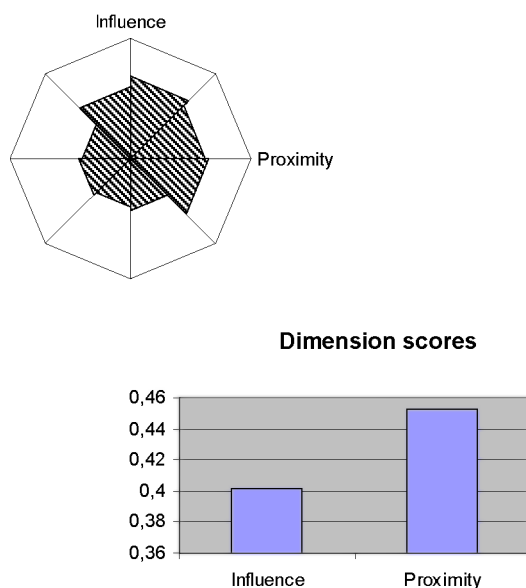
Figure 4. Graphical profile of average students' perceptions of teacher interpersonal styles and dimension scores of Indonesian teachers.

Concerning teachers' perceptions of their interpersonal behavior, the results can be seen in Figure 5. In general, teachers' perceptions of their interpersonal behavior showed a similar pattern compared to their students' perceptions, however, they displayed more leading, helpful/friendly and understanding behaviors over oppositional behaviors. Also, their perceptions of Strictness were similar to what their students thought. Regarding the two dimensions, it came out that they perceived themselves as cooperative (CO=0.85) and reasonably dominant (DS=0.58). It is obvious that both students and teachers rated the teacher higher on the Proximity dimension than the Influence dimension, indicating that Indonesian Mathematics teachers were more cooperative than hostile.

However, the results also showed that teachers' ratings were almost twice as high as their students' ratings. Teachers reported higher perceptions of their own leading, helpful/friendly and understanding behavior than did their students, but they reported lower ratings of their own uncertain, dissatisfied and admonishing behavior on their students. Students' ratings and teachers' ratings on Strict and Student/Freedom

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[22] Dimension scores range between -3 and +3. Score 0 represents equal amounts of dominance and submissiveness, cooperation and opposition respectively. Range of scores are: 0-0.5 (moderately positive), 0.5-1.00 (positive) and above 1 (very positive).

behaviors were about similar. This indicates that both parties experienced strict as well as freedom conditions in terms of interpersonal behavior in their classrooms.

The graphic in Figure 5 roughly represents the profile of a combination between Directive and Authoritative teacher. In addition to classroom characteristics of a Directive teachers, classrooms of this teacher type are illustrated by well-structured lessons, pleasant and task-oriented, clear rules and procedures, no need to remind students, attentive, generally produce better work than Directive teachers (Directive), enthusiastic and open to students' needs, takes a personal interest in students that comes through in lessons, likes lecture methods and frequently uses other techniques, lessons are well-planned and logically structured (Brekelmans et al., 1993).
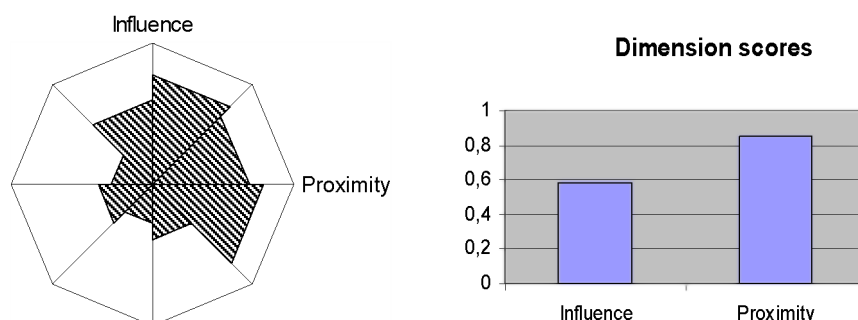
Figure 5. Graphical profile of average teachers' perceptions of their interpersonal styles and dimension scores.

Typology of Indonesian teacher interpersonal behavior

To obtain a teacher typology as constructed by Brekelmans (1989), analyses on class mean scores and teacher perceptions scores were performed. The results are provided in Table 5. As can be seen, only 4 out of 8 existing profiles can be found in both student data and teacher data. Also, both class perceptions and teacher perceptions resulted in 4 similar profiles. Distribution of the profiles in class perceptions were as follows: 13 Directive classes (81.3%), 1 Authoritative classes (6.3%), 1 Tolerant/Authoritative classes (6.3%) and 1 Repressive classes (6.3%). This finding indicates that according to students, their Mathematics teachers displayed directing behavior to a great extent. The other three interpersonal profiles appeared less frequent. Those three profiles are well known for their positive effects on student affective and cognitive outcomes (Wubbels & Levy, 1993, Brekelmans, Wubbels & Levy, 1993).

Table 5. Frequency of occurrences of interpersonal profiles in Indonesian samples

Profile	Class (n=16) %	Teacher (n=11) %
Directive	81.3	27.3
Authoritative	6.3	45.5
Tolerant/Authoritative	6.3	18.2
Tolerant	-	-
Uncertain/Tolerant	-	-
Uncertain/Aggressive	-	-
Repressive	6.3	9.1
Drudging	-	-

On the other hand, the results from teacher data showed that the Authoritative profile was more common than the other profiles (45.5%), followed by Directive profile

(27.3%), Tolerant/Authoritative profile (18.19%) and Repressive profile (9.1%). In general, teachers' rated themselves more into profiles that are most favorable to promote student learning (Authoritative and Tolerant/Authoritative), although the Directive profile was also perceived relatively often by them.

Association between students' perceptions of teacher interpersonal behavior and relative autonomy

Results of correlational analyses indicated that students' perceptions of teacher interpersonal behavior were correlated with their locus of motivation to learning Mathematics. Teacher Proximity was associated positively with Introjected (0.09), Identified (0.24) and Intrinsic motivation (0.27). With respect to Influence dimension, it was found that teacher Influence was associated positively with all students' relative autonomy in learning, with Identified and Intrinsic motivation being most highly correlated with this dimension (0.31 and 0.26 respectively). In general, teacher Influence was higher correlated with students' relative autonomy in learning than teacher Proximity.

Table 6. Correlations between the two dimensions of interpersonal behavior and student motivational scales. .

Dimensions	Extrinsic	Introjected	Identified	Intrinsic
Influence	0.08*	0.19**	0.31**	0.26**
Proximity	0.09*	0.24**	0.27**	

** $p < .001$

Table 7. Results of multilevel analysis to explain variation in student motivation; parameter estimates.

1. External
Motivation

Fixed effects	Model 0	Model 1	Model 2	Model 3
Constant	3.17(.06)	3.10(.07)	3.15(.05)	3.10(.08)
Influence	-	0.19(.12)	-	0.18(.12)
Proximity	-	-	0.05(.07)	0.02(.07)

Random effects

Class level	0.04(.02)	0.04(.02)	0.04(.02)	0.04(.02)
Student level	0.41(.03)	0.40(.03)	0.40(.03)	0.40(.03)
Deviance	927.560	925.049	926.996	924.994
Decrease in deviance	-	2.511 (df=1)	0.564(df=1)	2.566 (df=2)

2. Introjected
Motivation

Fixed effects	Model 0	Model 1	Model 2	Model 3
Constant	3.64(.05)	3.49(.06)	3.58(0.06)	3.47(.07)
Influence	-	0.42(.12)*	-	0.38(.13)
Proximity	-	-	0.13(.07)	0.06(.07)

Random

effects

Class level	0.02(.01)	0.02(.01)	0.02(.01)	0.02(.01)
Student level	0.43(.03)	0.43(.03)	0.43(.03)	0.43(.02)
Deviance	953.760	941.943	950.134	941.269
Decrease in deviance	-	11.817(df=1)**	3.626(df=1)	12.491(df=2)**

*Note: Fixed coefficients are followed by their standard error. *p < .05; **p < .001*

3. Identified Motivation

Fixed effects	Model 0	Model 1	Model 2	Model 3
Constant	4.17(.06)	3.92(.06)	4.02(.06)	3.87(.06)
Influence	-	0.67(.09)**	-	0.56(.10)**
Proximity	-	-	0.30(.06)**	0.19(.06)**

Random effects

Class level	0.04(.02)	0.03(.01)	0.03(.01)	0.02(.01)
Student level	0.31(.02)	0.28(.01)	0.29(.02)	0.28(.02)
Deviance	805.116	761.195	778.492	750.361
Decrease in deviance	-	43.921(df=1)**	26.624(df=1)**	54.755(df=2)**

4. Intrinsic Motivation

Fixed effects	Model 0	Model 1	Model 2	Model 3
Constant	3.96(.05)	3.73(.06)	3.80(.05)	3.67(.06)
Influence	-	0.59(.11)**	-	0.45(.11)**
Proximity	-	-	0.33(.06)**	0.24(.06)**

Random effects

Class level	0.03(.02)	0.03(.01)	0.02(.01)	0.02(.01)
Student level	0.36(.02)	0.34(.02)	0.35(.02)	0.34(.02)
Deviance	875.974	846.769	848.021	832.267
Decrease in deviance	-	29.205(df=1)**	27.953(df=1)**	43.707(df=2)**

*Note: Fixed coefficients are followed by their standard error. *p < .05; **p < .001*

Outcomes of multilevel analysis revealed a similar pattern, in which the Influence dimension being significantly associated with all relative autonomy scales except external motivation, while Proximity was only significantly related to the Identified and Intrinsic scales. The results showed that both dimensions do not predict student external motivation. The Influence dimension, rather than Proximity, is a significant predictor of student introjected motivation. About 5% variance in introjected motivation was between classes. Furthermore, more variance (11%) in identified motivation was between classes. Both Influence and Proximity dimensions significantly predict identified motivation. In addition, more than 8% variance in intrinsic motivation was in class level. Both Influence and Proximity dimensions significantly predict intrinsic motivation.

Discussion

The goal of the present study was to examine student's perceptions of their teacher interpersonal behavior, as well as teachers' perceptions of their interpersonal styles, in

Mathematics secondary schools within the Indonesian context. In addition, associations between students' perceptions of teacher interpersonal behavior and their motivation to learn Mathematics were investigated.

The results showed that students generally reported higher ratings concerning teachers' leading, Helpful/Friendly and Understanding behavior than Uncertain, Dissatisfied and Admonishing behavior. This suggests that Indonesian teachers were perceived to be more cooperative characters than hostile. Compared with previous QTI-related studies, the pattern is in line with most findings in other countries in that students tend to perceive higher amounts of cooperative than dominant teacher behavior (Wubbels & Levy, 1993). The proportion of scale scores in this study was roughly similar to that of scale scores in Dutch sample (den Brok et al., 2003). However, it is not known whether teachers in our sample had more or less similar interpersonal behavior with their Dutch colleagues. Surprisingly, this study also revealed that students' rating on teacher strictness was quite high. This indicates that despite the cooperative behavior, Indonesian teachers still seem to maintain classroom conditions, in which they keep a tight rein, check students' work and behavior, judge students, demand silence, set procedures and rules as well as give difficult test for students. The high rating of teacher strictness was also found in Turkish sample (Telli et al., 2007b). Nevertheless, findings in other countries generally showed lower rating of this scale (Brekelmans et al., 2002; den Brok et al., 2004; den Brok et al., 2006).

In terms of the two dimensions of interpersonal behavior, this study revealed that both cooperation and dominance were displayed by Indonesian teachers, even though the ratings were moderate (DS and CO < 0.50). On average, students thought that their teachers were directive. This profile is characterized by a low degree of cooperation and a high degree of influence. This might be explained from the perspective of culture and teaching method within the Indonesian classrooms. Teacher profession is commonly considered a highly respected occupation in Indonesia. Hence, teachers enjoy high status and respect from students and other society members. In the classroom context, teachers mostly hold distance with students, implicitly showing the students that they are in charge of the learning process. Conflicts between teachers and students happen frequently due to unequal power between the two parties, but in the end teachers will always have control over students. This situation is common and has been a feature of Indonesian society with respect to high power distance (Hofstede, 1991). With respect to teaching method, it is common that many Mathematics teachers still practice lecturing instead of implementing other, more interactive methods. Teachers actively explain the material and provide examples and exercises, while students listen, write and perform the tasks initiated bt the teacher. Class or group discussions are hardly present. In addition, interaction and communication between teachers and students are often missing (Zulkardi & Nieveen, 2001). This traditional method is regarded a method with high degree of teacher control over students (teacher-centered), also in a more communicative sense. If this was the case, then it is not surprising that most students perceived their teachers as directive.

When we compared these results to previous studies, it can be seen that the degree of Indonesian teachers' cooperation was rather low in comparison to that of teachers in some other countries (for example Australia, Singapore and Turkey). But the degree of Indonesian teacher dominance is comparable with that of their Turkish colleagues (Telli et al., 2007a). Surprisingly, Indonesian teacher profiles with respect to the two dimensions were quite similar to their Dutch counterparts (see den Brok et al., 2003 for detailed information about Dutch sample).

When we looked at teachers' self-perceptions of their interpersonal behavior, it was found that the results were in line with their students. Both parties indicated that teachers displayed more leading, Helpful/Friendly, Understanding and Strict behaviors compared to oppositional ones. In addition, students' ratings and teachers' ratings on Strict and Student/Freedom were about similar. Some studies reported higher teacher' perceptions of Strictness and lower teacher ratings of Student Freedom than did students (Fisher & Rickards, 1999; Rickards & Fisher, 2000). However, the results also showed that teachers' ratings were almost twice as high as their students' ratings. Teachers reported higher perceptions of their own leading, Helpful/Friendly and Understanding behavior than did their students, but they reported lower ratings of their own Uncertain, Dissatisfied and Admonishing behavior on their students. In addition, teachers generally thought they had an Authoritative profile. This profile is characterized by a relatively high degree of cooperation and somewhat dominance. It seems that many teachers in Indonesia created a more positive opinion about the learning environment than did their students. If it is the case, it implies a communication problem between the two groups. However, this was also the case with teachers in most countries (Wubbels & Brekelmans, 2005; den Brok et al., 2002; Fisher & Rickards, 1999; Harkin & Turner, 1997; Rickards & Fisher; 2000; Wubbels, Brekelmans & Hooymayers, 1992).

In terms of the distribution of teacher profiles, several interpersonal features were found in this study with the directive profile being most often assigned by students (82%), followed by the authoritative, tolerant authoritative and repressive profiles (6% each, respectively). Surprisingly, these four profiles were also found for teachers' perceptions, however, with a different distribution compared to students' perceptions. The authoritative profile was most common in the teacher sample (40%), followed by directive, tolerant/authoritative and repressive. In this study, only those four distinct profiles could be detected, which seems to be in line with the reported low level of variance at the class level (see method section). Prior studies generally could distinguish between seven and eight profiles (den Brok, Fisher et al., 2006b; Rickards, den Brok & Fisher, 2005). However, the four mentioned profiles seem to appear more frequently than the other ones in almost all studies (den Brok et al., 2003a; Telli et al., 2007a,b).

Concerning the second research question about associations between teacher interpersonal behavior and student locus of motivation to learn, person correlation analysis showed relatively moderate correlations between the two dimensions and student relative autonomy scales. Some support was found for the quality of the QTI with regards to predictive validity. Surprisingly, multilevel analysis revealed that teacher Influence was significantly related to all student relative autonomy scales except extrinsic motivation, while teacher Proximity was only related to Identified and Intrinsic motivation scales. The fact that Influence had more effect on relative autonomy than Proximity was unexpected as previous research generally revealed that the effect of Proximity on affective outcomes was stronger than that of Influence (den Brok et al., 2004; den Brok, Fisher & Scott, 2005b; Telli et al., 2007b). In general, both dimensions are not good predictors for external and introjected motivations. However, both dimensions significantly predict identified and intrinsic motivations.

This study has several drawbacks that need to be focused on in future research. It was found that intra-class correlations were reasonable for leadership, helpful/friendly, understanding and student freedom but low for the rest of the scales of the QTI. There does not seem to be much variation in interpersonal behavior between teacher/classes in student data; this can be seen from the profiles based on students'

perceptions that type 1 (directive) teacher was predominant, only a few other types of teachers in very small numbers were found. There are two possible reasons for this problem. It is likely that there might only be one major overarching teaching style in Indonesia. It might be that other types of profiles are not that common in the country. Otherwise, this study may suffer from low variability in the data due to sampling issues. Because only two provinces with only 5 schools were included in this study, it is possible that only particular schools and classes participated while others were not included. In addition, there were more classes than teachers in this study, indicating that some teachers who taught in more than one class were included. If students from different classes who were taught by the same teachers perceived their teachers in the same way, it is not surprising that this could contribute to low variability in the data.

The low variation also leads to validity problems, in which the scale inter correlations did not always form the expected pattern (not reported in this manuscript). In sum, those problems might be caused by sampling problems in the study in that there were inadequate varied teachers/classes in the sample as a consequence of voluntary participation. To respond to this, the authors are currently conducting another study with a larger sample from various regions in Indonesia, allowing them for applying more advanced analyses and giving more accurate and precise estimation of Indonesian teacher interpersonal behavior, probably with more (natural) variation.

Implications

As mentioned earlier (see theoretical framework), the QTI has been used as a diagnostic instrument to examine classroom environments with respect to teacher-student interpersonal communication from both students and teachers point of view. Its usefulness as a reflective tool for teachers has been shown in some countries like the Netherlands, USA and Australia. This line of research is still scarce Indonesia, partly because of cultural factor in which there is a hidden norm that it is uncommon to say something about your teachers. However, if the healthy development of teacher-student interaction during learning and teaching activities is considered important because of its impact on positive learning outcomes, schools and those involving in educational fields should be open to implementing and making use of such a research line. Some studies indicated the importance of good learning climates in Indonesian classroom. Yet, reliable and valid instruments for measuring such atmospheres are hardly available. The results of this study may become an initiative for supporting teacher professional development in Indonesia. It has some benefits for both student teachers and experienced teachers to make use of this study (e.g. as a source of self-reflection), and thus the QTI, as a personal feedback with respect to their own and their student opinion of the classroom climates. Research utilizing the QTI as a feedback instrument for teachers is still scarce (Wubbels & Brekelmans, 2005). When teachers can see which profile fits them best, they can learn about what their good and bad points are, helping them to learn from other teachers for improvement.

This research might also be useful for school leaders, policy makers, educational assessors and other stakeholders, since students' perception of their teacher interpersonal behavior are related to their affective and cognitive outcomes. This study also revealed that there are differences between student and teacher perceptions of interpersonal behavior. Little is known why this is the case, but it indicates that there seems to be a problem regarding the communication process between the two groups. Future research to investigate causes of these differences is needed.

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IV Myths and Fairy Tales

11. The animal trickster – an essential character in African tales

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The oral tradition in Africa

There are as many types of African literature as there are African nations from Northern Africa to the Cape of Good Hope. However, the oral tradition, stories passed down verbally from one generation to another, is common to all of them.

Traditionally, Africans have revered good stories and storytellers, as have most past and present peoples around the world who are rooted in oral cultures and traditions. Ancient writing traditions do exist on the African continent, but most Africans today, as in the past, are primarily oral peoples, and their art forms are oral rather than literary. In contrast to written "literature," African "orature" (to use Kenyan novelist and critic Ngugi wa Thiong'o's phrase) is orally composed and transmitted, and often created to be verbally and communally performed as an integral part of dance and music. Storytelling is an active exchange in which the audience participates with responses and songs. The Oral Arts of Africa are rich and varied, developing with the beginnings of African cultures, and they remain living traditions that continue to evolve and flourish today.

But this was not a linear process because in the late 19th C., the European scramble to conquer Africa radically changed its literature. While trickster tales, one of the oldest and most popular surviving forms of oral literature, mainly characterize pre-colonial African literature, colonial literature tends to deal more with slavery and themes of independence. Postcolonial written works, often dealing with conflicts between the past and the future and the difficulty of maintaining an African identity in the face of globalization, have recovered the oral tales adapting and integrating them. e.g. that is what Nigeria's Chinua Achebe did with *Things Fall Apart* and South Africa's Alan Paton with *Cry, the Beloved Country.*

The trickster tale

The African tradition of expressing the invincibility of the weak through the form of the trickster shaped largely the pre-colonial African oral narrative, but also the African narrative in the Americas (during slave trade) and later in Africa during the colonial period, as it bolstered the storytellers' and audiences' confidence in their ability to survive and, eventually, overcome the inhumanities they suffered. And it is still feeding the storyteller's and novelist's creativity in the current African world of uncertainty and abyss between social classes.

Like myths from other parts of the world, those of the African peoples reflect beliefs and values. But while the mythologies of many cultures are carefully preserved relics of ancient times, African myths, legends and folktales are still a meaningful part of everyday life.

Casting the captured and enslaved heroes of African narratives in the familiar and culturally-charged role of the trickster has communicated, throughout the ages, understated images of resistance, subversion, wisdom's delicate balance of caution and cunning and eventual triumph against great odds. Trickster tales attest to the truth that the relation of power between the strong and the weak does not preclude agency on the part of the latter.

The trickster tales which Africans brought with them in their forced immigration to the Americas, and which they created later when colonised in their own lands, may have amply provided these subjugated peoples with an empowered self-image and culturally-relevant means of hope. The less powerful members of societies have always had an incentive to invent tactics that would enable them to cope with some comfort with the more powerful. This has made the animal trickster tale the best known type of African folktale.

The trickster figure

As we all know, trickster tales feature a small, devious animal or character that employs its cunning to protect itself against much larger and more powerful animals and whose pranks usually cause trouble for another character. In most instances, the trickster goes away gloating and unpunished, though in some tales there is a turnabout, and the trickster falls prey to the mischief he started. This figure of mischievous disruption is characterized by rule-breaking, lies, theft, shape-shifting, and wordplay.

Usually male, he delights in breaking rules, boasting, and playing tricks on both humans and gods. Operating outside the framework of right and wrong, tricksters do not recognize the rules of society. Their characters and actions are far from simple, however. Often childish, greedy, lustful, and even nasty, tricksters can also be friendly, helpful, clever, and wise. Sometimes they appear to be clownish, clumsy, or foolish, although they usually possess amazing powers of survival. A trickster may come to a sorry end in one story but then, after being miraculously brought back to life, reappear in other tales.

The trickster figure is found all over the world. Almost all-traditional cultures tell stories featuring specific tricksters. For example, Coyote and Raven are the featured tricksters in native North American culture. In Europe and South and Central America the trickster can be Fox or Wolf. Norse mythology has Loki as their trickster. China has its Monkey King, Greece its Hermes the Thief, and, of course, there are more in other cultures.

In West Africa, the trickster is the **spider** (Ghana, Liberia and Sierra Leone). West Africans originally considered the spider Anansi to be the creator of parts of the world. He often acted as a go-between for humans in their dealings with the sky god Nyame, and he supposedly persuaded Nyame to give both rain and the night to people. In most stories, however, Anansi is a crafty and cunning trickster who makes life more enjoyable for himself (or more difficult for others) by fooling humans, other animals, and even the gods themselves, often using his cleverness and knowledge of his victims' ways of thinking to trick them and achieve his purpose.

Still in West Africa, in Benin and Nigeria, we find the **tortoise**. The Yoruba tribe from Nigeria consciously poke fun at their own faults when they tell stories of the tortoise-trickster. Sometimes the tortoise's cunning defeats itself, as, for example, in the tale in which the tortoise steals from the gods a calabash that contains all the wisdom in the world. He hangs it around his neck and is so eager to get home with it that, when he comes to a tree trunk lying across the road, he is unable to cross it because the calabash gets in his way; in his anxiety he fails to think of putting it on his back. Frustrated, the tortoise smashes the calabash, and so, ever since that day, wisdom has been scattered all over the world in tiny pieces.

In Bantu Africa (East, central, and southern Africa) and the western Sudan, the trickster is the **rabbit or hare**.

A well-known tale is when the Bantu trickster Hare decides to get married. However, he is too lazy to do the work to support a wife. He thinks of a better way of getting the work done and goes into the bush with a long rope to look for Hippopotamus. Hare tells Hippopotamus that he wants to tie this rope to him to see if he can pull him. Hare tells Hippopotamus that when he sees the rope move he is to pull hard. Hippo obviously knows he can pull Hare out, but still agrees. Then Hare goes to meet Elephant and tells a similar story. Hare then goes to the middle of the rope and jerks it on both sides. Hippo and Elephant begin pulling and their tug-of-war lasts until sundown. Their struggle has then cleared the land, which is the work hare didn't want to do. Now Hare can support a wife.

Popularity of tricksters

What's the long-lasting appeal of a mischievous hero who so often gets away with causing trouble? One answer is that trickster figures are humorous and trickster stories make people laugh, just as practical jokers amuse some people today.

A second and deeper reason for the popularity of tricksters is the way they combine mischief with creativity. These are timeless because they remind us of our own follies as humans. Sometimes funny, often sly, and almost always subversive, these mythological characters transcend boundaries and time. They create a world, both real and imagined, that largely shapes the way we humans live, how we think and act today. They are usually very human-acting animals or even having the ability to switch between animal and human form.

These tales present a character who is then basically self-centred and lives to gratify his own needs. These are adventure tales in which coyote, fox, rabbit, or spider use cunning, wit and humour to outsmart other animals or people in their search for food or benefits. Sometimes, the tales cast the trickster animal in the role of bringing what is needed for survival to others. But even if sometimes this animal will help others, it will always take care of itself first. For children, this character can be especially appealing because it validates the parts of us that are naughty and sometimes get caught in the act.

Tricksters are amoral characters, and so their antics offer a relief from morality, a relief we all need now and then. He knows neither good nor evil, yet he is responsible for both. He possesses no values, moral or social, and is at the mercy of his passions and appetites. Yet out of these actions, even when they are those of lying and cheating, may come wonderful results. Through their cunning they bring us, for example, the moon and the stars!

Most of the times these figures are subversive but they can also be creative. Trickster figures in the cosmology of many cultures create many features of the natural world as they play their pranks. They are culture heroes or creators who give people some tools of civilization, such as language and fire, and whose activities explain how some aspect of the world came into being. An example is in the Native American story "Coyote and the Wolves". In tricking the wolves, Coyote forms constellations in the night sky.

A third reason why trickster stories endure is then that they also teach a moral lesson about the penalties of misbehaviour, lessons about the futility of vanity, the perils of being naïve about ways of the world, and the punishments that may come from being greedy. The butts of trickster jokes are often characters who exhibit these traits and who come away wiser after their hard lesson about taking what belongs to another.

The African tricksters perceive, remember, and study the others' weaknesses in order to use this knowledge for the trickster's own self-interest or amusement, or to escape social responsibilities. Tricksters exist on the peripheries of the social order ("liminal" figures at the boundaries of society). Their individualistic, non-conformist behaviour creates havoc and disharmony in society, and can threaten the survival of the community. (Contrast this attitude to the positive ways we, in Europe and the U.S., value individualism.) The trickster's bad anti-social behaviours are usually punished, and the evil forces unleashed are controlled or defeated. Thus, for example, recounting trickster stories in African communities can function to reaffirm the priority and wisdom of the community, reassure its members that balance and harmony can and should be restored, and that the community will survive and prevail.

Evolution and change across time and place

The tale "The Tortoise and the Birds" (Achebe, 1958) features the tortoise as a trickster figure and also attempts at giving an aetiological explanation for its cracked shell. But there are other traditional Igbo folktales presenting a different explanation of why the tortoise has a cracked shell. Why the variations? For starters, even traditional oral "texts" are not static or unchanging — there is no reverence for a single, "definitive" text committed to writing and shelved in a library, a Western concept foreign to traditional African oral performance arts. Oratures, like the cultures that produce them, constantly evolve and change across time, culture, place and regional style, performer, and audience for a variety of reasons. For example, if a story loses its relevance because of changing values and social conditions, it is discarded or modified, and new stories are born. As scholars and transcribers attest, even the same gifted African oral storyteller does not simply memorize and repeat the same story the same way each time. Storytellers will alternate between set text and improvisation. Within open-ended narrative and poetic formulas, the bard creates, embellishes, adapts to the occasion, and plays to the needs and interests of particular audiences.

So animal stories have many variations and abound in the oral traditions of Africa and the African Diaspora.

The **Tortoise** is called
- Nnabe in Igbo cultures
- Ijapa in Yoruban cultures and
- Fudugazi in Zulu cultures, for example.

The **Spider** is a popular character in many regions of Africa (and even outside) and is known by many names:
- Anansi or Ananse
- Kweku or Kwaku (uncle) Anansi (Ashanti and related Akan peoples of West Africa)
- B'anansi (Suriname)
- Gizo (Hausa tribe of West Africa)
- Aunt Nancy (In South Carolina, Aunt Nancy is sometimes used as folk name for the spider, because the term is the Americanized version of Anansi).
- Annancy or Anancy (Jamaica, Grenada, Costa Rica, Colombia, Nicaragua)
- Kompa Nanzi (Netherlands Antilles)

The **rabbit** or the **hare** is usually named Zomo or Sungura.

Africa – a diverse continent

Africa is not one culture or people, but a myriad of peoples and tribes that now live mostly in the modern world with isolated pockets of people living the old ways of generations long ago, still following the old traditions and keeping alive the old beliefs and myths.

Africa is one of the largest land masses on the earth. The terrain is a combination of desert and dry land, of savannah and of tropical forests. It is here that the myriad of exotic animals exists on the continent: from hippos to leopards, chimps and the numerous varieties of birds, reptiles, and fish.

A vast and geographically varied continent, Africa is home to a great many cultures and to a thousand or more languages. Although no single set of myths and legends unites this diverse population, different culture groups and regions share some common elements.

It is from the geography and the culture that sprang from it that the African myths evolved. Living in such a land with such a precarious relationship with nature, the Africans developed a keen respect for all living things and the land itself. That respect is imbedded in their myths, and stories which serve a vastly greater purpose than entertainment. They contain key elements to understanding the culture and its customs and beliefs. African mythology is indeed filled with stories of animals.

We still have much to learn about Africa and its many peoples. And there is hardly a better way to know them than through the oral literature they have created and preserved.

Storytelling

My selection of complete tales includes one for each of the three main African animal tricksters:
- "Anansi Owns All Tales That are Told" telling us how he duped the Sky God to become the owner of all the tales in the world.
- "Ijapa and Yanrinbo Swear an Oath" telling how the tortoise and his wife outwitted a punishment.
- "Zomo the Rabbit" telling how he received wisdom.

Perhaps the most well-known character in Western Africa is <u>Anansi the spider</u>. Anansi is in fact the paramount trickster hero of West African peoples. He is also a culture hero and, frequently, a buffoon. He is preoccupied with outfitting the creatures of the field and forest, men and even the deities.

He has both human and spider qualities. His behaviour is human but he has the form of a spider and lives in a community of animals.

In the past, and still in rural areas of Ghana today, the tales are told around the fire to entertain and teach the values of the society. Many Ghanaians today are born in urban areas and not as likely to hear Anansi stories from their elders. However, Anansi tales have been recorded and published in books and pamphlets for children and adults. Every Ghanaian elementary student reads about Anansi and may get to act out an Anansi story as a way to learn about Ghana's rich cultural heritage.

Anansi plays various roles in the tales and in the minds of modern Ghanaians. Sometimes he is seen sympathetically, even as wise but he is more often characterized as cunning, predatory, greedy, gluttonous and without scruples. Although he may be

admired for his frequent victories over those who are larger and stronger than himself, he does not usually gain moral approval.

Anansi Owns All Tales That Are Told

In the beginning, all tales and stories belonged to Nyame, the Sky God. But Kwaku Anansi, the spider, yearned to be the owner of all the stories known in the world, and he went to Nyame and offered to buy them. The Sky God said: "I am willing to sell the stories, but the price is high. Many people have come to me offering to buy, but the price was too high for them. Rich and powerful families have not been able to pay. Do you think you can do it?"

Anansi replied to the Sky God: "I can do it. What is the price?"

"My price is three things," the Sky God said. "I must first have Mmoboro, the hornets. I must then have Onini, the great python. I must then have Osebo, the leopard. For these things I will sell you the right to tell all stories."

Anansi said, "I will bring them."

He went home and made his plans. He first cut a gourd from a vine and made a small hole in it. He took a large calabash and filled it with water. He went to the tree where the hornets lived. He poured some of the water over himself, so that he was dripping. He threw some water over the hornets, so that they too were dripping. Then he put the calabash on his head, as though to protect himself from a storm, and called out to the hornets: "Are you foolish people? Why do you stay in the rain that is falling?"

The hornets answered, "Where shall we go?"

"Go here, in this dry gourd," Anansi told them.

The hornets thanked him and flew into the gourd through the small hole. When the last of them had entered, Anansi plugged the hole with a ball of grass, saying, "Oh, yes, but you are really foolish people!"

He took his gourd full of hornets to Nyame, the Sky God. The Sky God accepted them. He said, "There are two more things."

Anansi returned to the forest and cut a long bamboo pole and strong vines. Then he walked toward the house of Onini, the python talking to himself. He said: "My wife is stupid. I say he is longer and stronger. My wife says he is shorter and weaker. I give him more respect. She gives him less respect. Is she right or am I right? I am right, he is longer. I am right, he is stronger."

When Onini, the python, heard Anansi talking to himself, he said, "Why are you arguing this way with yourself?"

The spider replied: "Ah, I have had a dispute with my wife. She says you are shorter and weaker than this bamboo pole. I say you are longer and stronger."

Onini said: "It's useless and silly to argue when you can find out the truth. Bring the pole and we will measure."

So Anansi laid the pole on the ground, and the python came and stretched himself out beside it.

"You seem a little short," Anansi said.

The python stretched farther.

"A little more," Anansi said.

"I can stretch no more," Onini said.

"When you stretch at one end, you get shorter at the other end." Anansi said. "Let me tie you at the front so you don't slip."

He tied Onini's head to the pole. Then he went to the other end and tied the tail to the pole. He wrapped the vine all around Onini, until the python couldn't move.

"Onini," Anansi said, "it turns out that my wife was right and I was wrong. You are shorter than the pole and weaker. My opinion wasn't as good as my wife's. But you were even more foolish than I, and you are now my prisoner."

Anansi carried the python to Nyame, the Sky God, who said, "There is one thing more."

Osebo, the leopard, was next. Anansi went into the forest and dug a deep pit where the leopard was accustomed to walk. He covered it with small branches and leaves and put dust on it, so that it was impossible to tell where the pit was. Anansi went away and hid. When Osebo came prowling in the black of night, he stepped into the trap Anansi had prepared and fell to the bottom. Anansi heard the sound of the leopard falling, and he said, "Ah, Osebo, you are half-foolish!"

When morning came, Anansi went to the pit and saw the leopard there.

"Osebo," he asked, "What are you doing in this hole?"

"I have fallen into a trap," Osebo said. "Help me out."

"I would gladly help you," Anansi said. "But I'm sure that if I bring you out, I will have no thanks for it. You will get hungry, and later on you will be wanting to eat me and my children."

"I swear it won't happen!" Osebo said.

"Very well. Since you swear it, I will take you out," Anansi said.

He bent a tall green tree toward the ground, so that its top was over the pit and he tied it that way. Then he tied a rope to the top of the tree and dropped the other end of it into the pit.

"Tie this to your tail," he said.

Osebo tied the rope to his tail.

"Is it well tied?" Anansi asked.

"Yes, it is well tied," the leopard said.

In that case," Anansi said, "you are not merely half-foolish, you are all-foolish."

And he took his knife and cut the other rope, the one that held the tree bowed to the ground. The tree straightened up with a snap, pulling Osebo out of the hole. He hung in the air head downward, twisting and turning. And while he hung this way, Anansi killed him with his weapons.

Then he took the body of the leopard and carried it to Nyame, the Sky God, saying: "Here is the third thing. Now I have paid the price."

Nyame said to him: "Kwaku Anansi, great warriors and chiefs have tried, but they have been unable to do it. You have done it. Therefore, I will give you the stories. From this day onward, all stories belong to you. Whenever a man tells a story, he must acknowledge that it is Anansi's tale."

In this way Anansi, the spider, became the owner of all stories that are told. To Anansi all tales belong. (Courlander, 1996, pp. 137-139)

Ijapa, the tortoise of the Yoruba tribe of West Africa, is shrewd, sometimes wise, conniving, greedy, indolent, unreliable, ambitious, exhibitionistic, and physically slow but quick witted, lives a long time and has a long memory. Though he has bad character, his tricks, if ingenious enough, can excite admiration. Though he may be the victor in a contest of wits, his success does not teach that bad behaviour is justifiable. He exists as a projection of evil forces and bad behaviour against which mankind must contend, sometimes winning, sometimes losing. Ijapa survived in the United States Black folklore as Brother Terrapin.

Ijapa and Yanrinbo Swear an Oath

As it is known to all, Ijapa was shiftless and did not tend his own garden. His wife Yanrinbo spent all her time making conversation with other women, sometimes in the market, sometimes on the trail, some times at the stream where the laundering was done. Between the two of them, nothing was ever put away for a time of need. There came a drought in the country, and food was scarce. Other people did not have enough food supplies to spare anything for Ijapa and his wife. They were faced with hunger.

Ijapa said: "Our neighbour Bamidele has a storage house full of yams. It is not right that he has yams while we have none."

He made a plan. And early one morning, before daylight, he awakened Yanrinbo. She took a large basket, and the two of them set out for Bamidele's place. When they approached the storage house, Ijapa ordered Yanrinbo to sit on his shoulders. She did this and placed the basket on her head. Then he went to the storage house. There they filled the basket with yams, and with his wife sitting on his shoulders and the basket on her head, he returned the way he had come. When they arrived home, they emptied the basket and returned for more. The second time, like the first, Yanrinbo sat on Ijapa's shoulders with the basket on her head. They made many trips this way, until they had enough.

A few days later the neighbour, Bamidele, discovered that a large portion of his yams was missing. He saw footprints leading towards Ijapa's house. He inquired here and there. And at last he brought Ijapa and Yanrinbo before the chief and accused them of taking his yams.

Now, it was the custom to take persons accused of a crime to a particular shrine, where they would either admit their guilt or swear their innocence. If they confessed their misdeeds, they were punished according to the law. If they swore their innocence, they then drank a bowl of agbo, an herb drink prepared by the shrine priest. If the oath they had sworn was true, it was said, nothing would happen to them. But if they had sworn to a falsehood, the agbo would cause them to fall sick. In this way their guilt or innocence would become known.

The chief ordered Ijapa and Yanrinbo to appear before this shrine. The whole village came to watch the trial. Ijapa and Yanrinbo kneeled before the shrine while the priest made the agbo. When all was ready, Ijapa was called upon to swear his oath. He swore: "If I, Ijapa, the husband of Yanrinbo, ever stretched up my hand to remove yams from Bamidele's storage house, may I fall sick instantly and die."

Then Yanrinbo swore: "If I, Yanrinbo, wife of Ijapa, ever used my legs to carry me to Bamidele's storage house to steal yams, may I fall sick instantly and die."

The priest then gave Ijapa and Yanrinbo a large bowl of agbo to drink. They drank. They did not fall ill. Nothing at all happened. Seeing this, the chief said: "Their oaths were true. Therefore, release them." So Ijapa and Yanrinbo were released.

What they had sworn was not false, for Yanrinbo had not used her legs to get to the storage house. She had ridden on Ijapa's shoulders. And Ijapa had not raised his hands to carry away the yams. It was Yanrinbo who had raised her hands to balance the basket on her head.
(Courlander, 1996, pp. 226-227)

Finally, the <u>Rabbit or Hare</u> is the main trickster of the Bantu-speaking peoples from Angola, South Africa, Zimbabwe, Botswana, Lesotho, Uganda and Zambia, but it is found in stories in most parts of Africa and even outside as already referred. There are many links between the African tales and their cultural descendants in the New World. African storytellers brought this figure to America where it was integrated with the Native American hare eventually becoming Bre'r Rabbit. But Zomo also lives as Cunny Rabbit or Compère Lapin, in the Caribbean.

Like tricksters in storytelling traditions around the world, the fleet-footed Zomo outwits his larger foes with guile and trickery. And like his African cousins Spider and Tortoise, he uses his wit to gain wisdom.

In the following tale, it can be found again the typical structure of the three-situation challenge for the trickster to overcome and then gain what he wishes.

Zomo The Rabbit

Zomo was not very big or strong, but he was a very clever rabbit. But, Zomo wanted more than cleverness and he wanted wisdom! So he went to Sky God and asked for wisdom.

The Sky God told Zomo that to get wisdom, he would have to earn it." The Sky God told Zomo that he would have to do three impossible things." They were:
1. To bring the scales of Big Fish in the sea to him.
2. To bring the milk of Wild Cow to him.
3. To bring the tooth of Leopard to him.

Zomo said he would try to do exactly that.

Zomo went to edge of the sea to find Big Fish. He began to play his drum. He played so loud his drumbeats went down to the bottom of the sea. Big Fish heard the music of the drum.

Big Fish then came up out of the water and danced on the sand. Zomo began to beat his drum faster and faster. Then Big Fish danced faster and faster and faster.

Big Fish then danced so fast his scales fell off. Big Fish became naked and quickly jumped back into the sea.

Zomo scooped up all the fish scales in his hat and hopped into the forest. While in the forest, Zomo climbed a palm tree and looked all around. That was when he saw Wild Cow.

He goaded Wild Cow by telling him that he wasn't big and strong, which angered Wild Cow. Zomo dared Wild Cow to knock down the little palm tree.

Wild Cow got so angry that she ran at the tree to knock it down. However, the palm tree was soft and her horns got stuck in the tree.

While Wild Cow was stuck, Zomo slid down the tree and he turned his drum upside down and filled it with milk.

Zomo then took the path to the top of a high hill. This path led to the hill where Leopard walked every day. Zomo tipped his hat and sprinkled a few fish scales on the path. Then Zomo tipped his drum and spilled a few drops of milk on the path.

Then Zomo went to the bottom of the hill and hid behind a rock. Soon Leopard came walking over the hill. Leopard slipped on the slippery scales and the milk, rolled down the hill and hit the rock. His tooth immediately popped out. Zomo caught that tooth and hopped away.

> Zomo took the scales of Big Fish, the milk of Wild Cow, and the tooth of Leopard to Sky God. Sky God smiled upon Zomo. "You are clever enough to do the impossible," he said. "Now I will give you wisdom."
>
> Sky God spoke. Zomo listened. "Three things in this world are worth having: courage, good sense, and caution," said Sky God. "Little rabbit, you have lots of courage, a bit of sense, but no caution. So next time you see Big Fish, or Wild Cow, or Leopard... you'd better run fast!"
>
> Zomo is not big.
> Zomo is not strong.
> But now Zomo has wisdom.
> And he is very, very fast.
> (McDermott, 1992)

The oral traditions always have a didactic range. Indeed, from the tale, to the myth, proverbs and riddles and even epic narrations, there is always a teaching to pull, a value to instil in the child.

All of these trickster tales are interesting because most have a moral and they are easily comparable to fables from other cultures. Discussion about the character of the trickster and the moral lesson can be used to stimulate children's writing either in re-action pieces to the moral or attempts at some simple fable writing of their own.

Creative writing

The task proposed involves creating collectively a trickster tale. The beginning of the tale is given and participants have to make up its development and conclusion; each volunteer has to add a sentence to build the story.

How Spider Got a Thin Waist

> Many dry seasons ago, before the oldest man in our village can remember, before the rain and the dry that any of us can talk about to his children, Spider was a very big person. He did not look as he looks today, with his fat head and is fat body and his thin waist in between. Of course, he had two eyes and eight legs and he lived in a web. But none of him was thin. He was big and round, and his waistline was very fat indeed. Today, he is very different, as all of you know, and this is how it came to pass.
>
> One day, Spider was walking through the forest. It was early morning and he noticed an unusual...
> (Arkhurst, 1992)

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12. The Portuguese and the "others": Dialogue of cultures and characters in oral literary tradition

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Abstract

The wonderful world of *Myths and Fairytales* is an invitation to travel to extraordinary places and living amazing adventures, interacting with different creatures, real or fictional. Stories offer culture dialogue and sharing of different ideas and visions of the world. And what can we see from the "others' point of view? The reflection of our own image through a mirror's perspective where it's possible to (re)discover and (re)build our own identity. What do the Portuguese popular tales speak about? Most of these stories are framed by the usual fairy tale subjects. From the monster's passion for beautiful girls, to princes, princesses, good fairies, witches, talking animals, loveable fools, smart tricksters, magical objects and transformations and ... lots of mysterious and beautiful Moorish young girls. A large number of legends, folktales and myths reflect the culture's history, social customs, morals, values and religious beliefs. Most of the times, a tale reflects an historical fact occurred in a specific geographic space, recreating a fictional dimension that several times does not report the historical truth of the facts. We will focus more particularly on Christianity/Islamism cultural dialogue and its influence on the Portuguese fairytales and traditional legends. The purpose of this paper presentation is to show how to build bridges between cultures and how to improve intercultural dialogue through oral traditional narratives, without forgetting to mention the trickster figure in our national contest.

Introduction

On the western side of Europe there's a country looking towards the Atlantic ... Portugal is the place where Europe reaches the Atlantic... An old country with a strong identity... Eight centuries of History and Culture have shaped in the Portuguese mentality a predisposition for cross-cultural communication, inside the country and all over the world...

Portugal is a coloured mosaic of identities, a rendez-vous of several races and peoples that from early times have inhabited the Iberian Peninsula. Invaders or pacific merchants, these peoples have left their presence in this place. The Portuguese expansion in the 15th and 16th centuries has also provided the contact with different cultures and perspectives of the world. Spread as diaspora all over the world or nowadays integrating immigrants, the Portuguese have a large experience in intercultural contacts.

In the Portuguese oral narrative, we can find echoes from other places, other times and other people, pieces of intercultural dialogues established throughout Portugal's History.

Who is the "other" in the Portuguese folktales?

Moorish, Jews, Gypsies, Black people, Galicians, Indians and other peoples which live in traditional tales and mark their presence in fairytales, popular legends, proverbs, poems, rhymes, songs, anecdotes .

The wonderful world of *Myths and Fairytales* is an invitation to travel to extraordinary places and living amazing adventures, interacting with different creatures, either real or fictional. The magic of "diversity" does not leave anyone indifferent. Stories offer culture dialogue and permit to share different ideas and visions of the world.

And what can we see from the "others' point of view? The reflection of our own image through a mirrors' perspective where it's possible to (re)discover and (re)build our own identity.

What do the Portuguese popular tales speak about?

Most of these stories are framed by the usual fairy tale subjects. From the monster's passion for beautiful girls, to princes, princesses, good fairies, witches, talking animals, loveable fools, smart tricksters, magical objects and transformations, simple (but brave) peasants, nymphs and a lot of mysterious and beautiful Moorish young ladies.

Stories, as everywhere, show encounters and disagreements, enchantments and disenchantments, war and piece, love that becomes hate and hate that becomes love. In popular narratives, Evil is punished and Good always brings a reward. But sometimes Evil and Good can be together in a tumultuous and unforeseen twister of feelings and emotions...

In fact, there are several stories were the religion barrier, for example, is not able to separate men and women in love, despite they're predestined to be enemies. In the Portuguese oral tradition, the dialogue Christianity/Islamism can have an announced happy-ending, without bitterness or prejudice. Other times, death can interfere in a love relation, as it happens, as we will see, in *Gaia's Legend (Lenda de Gaia)*.

A large number of legends, folktales and myths reflect the culture's history, social customs, morals, values and religious beliefs, the position and roles of men and women in society. Most of the times, a tale reflects an historical fact occurred in a specific geographic space, recreating a fictional dimension that several times does not report the historical truth of the facts.

History and myths are also the base of many Portuguese folktales

On of these examples is the Arab invasion of the territory, nowadays known as Portugal, which took place in the year of 711. These people of high cultural level have provided a prosperous and rich cultural encounter during five centuries.

In 1128 begins the formation and organization of the Portuguese territory. Portugal is an independent nation from 1143. The Reconquest period lasts till the 13th century. This is the historical frame of fairytales with Islamic characters, despite the fact that in the Portuguese oral tradition the expression in Moorish times" represent the past in general. The Arab presence in the Iberian Peninsula was the source of an important literary production in both countries. (I'm thinking about the Tales of Alhambra, written by the American author Washington Irving in 1829).

Christianity/Islamism cultural dialogue pop up in Portuguese fairytales and traditional tales that have wondered successive generations. The presence of the "enchanted Moorish girl" or the "powerful Moorish king" is a crucial part of Portuguese folk literature where it is visible the attraction towards a "different" culture, which provokes an exquisite aesthetic enthusiasm.

These stories make us dive in a universe of magic and enchantment, through a moving and touching love stories between lovers supposed to be "enemies". Legends can reflect national and local hostilities too. The civilization progress determined a continuous decrease of intractable relationships, but a certain suspicious attitude toward the "*other*" (the "foreign") remained. In the Portuguese oral tradition, love can win over linguistic and cultural barriers… as it happens often in stories where Christians and Moorish interact. The Reconquest and Crusades purposes and "philosophy" could be the perfect historical frame for bitterness and hate between Christians and Moorish everlasting in narratives.

The truth is that, in this literary context, just has we said, there are several examples of love stories between men and women separated by social and cultural barriers apparently insurmountable. Instead of showing distinctive aspects of different cultures, stories can emphasize common values of both cultures such as courage, honesty, honour, hospitality, generosity and loyalty. Good forces are more powerful than bad forces and some tales have morals that teach how to separate right from wrong (the same happens in Arabic literature).

Although folktales might include supernatural and magical elements, they are usually based on real life events reflecting a cultural ambiance. The faith in God and Allah can live together in the same folktale, but in the Portuguese context, obviously, the European Jewish-Christian tradition is always emphasized. The characters struggle to reach happiness, celebrating differences without forgetting the background which shapes the culture to which they belong.

In fairytales with the presence of the "enchanted Moorish" female characters, the Christian and Pagan wonder world are mixed, being the true history of the Arabs' invasions shaped accordingly with the fictional plot that repeats and folds in different variables of the same subject: the story of a beautiful, sad, magic, mysterious and tricky Moorish young girl, normally sitting near a river or a fountain in the June solstice (Saint John), waiting for a brave young man, able to love her and to set her free from a spell that turned her lonely life into suffering.

The beautiful and enigmatic Moorish girl appears most of times in fairytales like:

- a water fairy (most frequent profile- similar to lake-ladies in British tradition);
- a feminine genie that appear in monuments;
- a treasure guardian; or
- a spinner (spinning wool or sitting near a spinning-wheel)

This feminine character is frequently presented like a mysterious and beautiful woman that lives in captivity, promising her saviour material goods and also her gratitude, love and eternal happiness. Here we have, in a certain way, a classic version of the princess captive in a tower, waiting to be released by a brave hero coming from distant regions, but, in this case, the scene takes a cultural/ethnic colour that turns it more enthusiastic.

The Moorish young women is also a peaceful and charming trickster, able to transform or assume whatever appearance she likes (a snake, most of times), accordingly to the spell she was cursed. But the trick itself is a part of her enchantment, not posing any kind of threat of unlikely character. She never appears like an evil crea-

ture. The Moorish is a princess or a common girl. She is beautiful, smart and overall ends by converting to Christianity due to her weakness: falling in love with someone from a different culture. In fairy tales, it is frequent to see a woman submitting herself to the man and accepting the values and customs of his culture (in this case, the conversion to Christianity). The opposite, a love relationship between a Muslim (strong, brave, sensible and powerful) ready to give up certain values of his culture for the love of a Christian woman can also occur, but it is less common.

The proverb *"with the truth you trick me"*, applicable to enchanted Moorish girls is one of the *leit-motives* of the Portuguese oral traditional narrative (literary or non-literary). Beyond the traditional trick connected to witchcraft, there are other contexts where this characteristic is patent, often seen as a character feature, without harmful connotation.

The lexical field related to this concept (tricking – *enganar, iludir*) is vast in Portuguese language. The fascinating and perplexing trickster figure can be said in several different ways, thus: *espertalhão, astuto, astucioso, manhoso, ardiloso, enganador, hábil, brincalhão, intrujão, embusteiro, vigarista, impostor, escroque, trapaceiro, fraudulento, finório, fiúza, Chico-esperto (smart- Chico)*. In relation to the deceiving act itself, there are several words that share the same lexical field: *engano, artimanha, estratagema, trapaça, embuste, marosca, partida, brincadeira, truque, ilusão, proeza, engodo, habilidade*.

Most of the times, the trickster is not necessarily presented as a mischievous genie or a kind of "supernatural" evil figure, clever than others or stronger due to an established pact with the devil. In the same way as the mysterious and beautiful Moorish girl, the trickster can be an ordinary person (or animal) that

- leads you to believe something that is not true;
- plays practical jokes on others; or
- performs a trick or an illusion using enchantments and spells, apparently with good or acceptable purposes.

Anyway, in Portuguese stories and jokes, no evil comes from a trickster ... They are cool and funny. We like them and the way they react in everyday life contexts. Besides the lovely Moorish girl mentioned above, raising love and compassion, who are the tricksters in the Portuguese oral tradition? They might be:

- People from other cultures: the gipsy, for example
- Animal figures: the fox (European influence)
- Enigmatic figures half person / half animal (A dama pé-de-cabra - the goat-foot lady)
- Collective characters: an old and smart women (who want to escape from the wolf), a clerical member that raises in us pity and sympathy just to have some food (for instance in a story entitled Stone Soup)
- The Portuguese themselves. The trickster can be presented as a general character profile of a Portuguese, man or women (self-stereotype).

The Portuguese can be seen as smart, nice and funny tricksters

I am, you are, we Portuguese are all funny tricksters: virtue, art or hitch? We could say that every Portuguese is a potential successful, charming and clever "Harry Potter", doing magic in difficult situations of everyday life and always winning because of his pragmatic perspective of life and sense of humour.

In fact, it's not difficult for a Portuguese to face the trick as a character feature closer to virtue than to a hitch. Usually, this attitude is reflected in anecdotes or jokes, showing the pragmatism and courage to face a particular situation, apparently a problem difficult to solve.

In the national oral tradition there are several jokes where the Portuguese are confronted with other foreigners in short life stories, overcoming complex and/or embarrassing daily situations.

We don't detect any conflict or antagonism between "us" (Chico-espertos/ "esperteza-saloia") and "the others" (more rational, less emotional and spontaneous). The purpose of each short funny story is only to show this "inapt" character feature in the average Portuguese. It seams that they are born to be winners with no suffer, with lots of savoir-vivre and some opportunism.

Conclusion

Stories are built according to the dualism *individual identity/collective identity.* The plot and the fictional story always illustrate the dialogue I /you, we /they. Any linguistic exchange reflects values, beliefs, mentalities and other cultural parameters.

Any character-type reflects the surrounding culture, in the context of a collective cultural identity. Obviously, the image that we build of the "other" always reflects a self- image. We will show all these ideas related to the Portuguese oral literary heritage by selecting a few stories where it's evident the dialogue of cultures and also a collective mentality feature which is precisely the subject of our TIG this year – the figure of the trickster.

Storytelling (adapted from Portuguese traditional fairytales)

Gaia legend (Lenda de Gaia) **-** a story of disencountered love between couples from different cultures, without a happy-ending.

In the ninth century the Douro River was the frontier separating Christian and Arab territories in the Iberia Peninsula in a place called Cale (the place that gave the name to the kingdom named Portus Cale – Portugal).

The Christian king D. Ramiro (from the Galicia Kingdom) was married with D. Gaya, but he felt in love with a Moorish princess named Zahara who was the Moorish king (Alboazar Alboçadam) sister. This king didn't approved the Christian king bigamy and like that he decided to revenge by kidnapping the beautiful queen, Dona Gaia, wife of D. Ramiro.

When D. Ramiro discovered that his wife was made prisoner, he decided to rescue her and save his honor. So, the king gathered his son and vassals and leave.
After D. Ramiro arrival near the Moorish castle, he told his son:
- When you hear the sound of this horn, you must come immediately to my rescue.

To enter the castle, D. Ramiro disguises himself as a pilgrim. Inside, close to the well was a beautiful Moorish girl to whom he asked to drink some water. This Moorish girl was precisely his beloved Zahara. She gave him a jar…Without noticing, the pilgrim placed a ring inside.

The Moorish girl took the jar and went to D. Gaia room. D. Gaia drunk some water and found the ring. She knew immediately that it was from her husband and she discovered the trick…
- Guards! Bring me immediately the pilgrim that his near the well!
- My beloved wife, it's me Ramiro! I came to set you free of this Moorish monster! I have a plan! Come …
- Take your hands out of me! You trickster pilgrim! Why did you come? To see your Moorish mistress, perhaps? I don't love you anymore! I hate you!

- What?! Are you in sane? I've just risk my life for you and you refuse to comeback home?!
- Listen, my darling… I'm sick and tired of you and of our life together. I love Alboazar! He's much better then you in everything… He made me a new woman faithful to Islam!
- You Bitch!
- Guards take this man to the dungeons, with no food and no water!

During his confinement, Zahara keeps visiting Ramiro, bringing himfood and water, and so their love grew and grew. One day, the Moorish king returned from his hunt, and D. Gaia asked him:
- What would you do if my husband were in the castle?
- I would kill him!
- Guards! Bring me the pilgrim!
- D. Ramiro himself! What death would you give me if I invade your castle without your permission?
- Well, I would let you eat and drink and then I would make you climb to the tallest tower and blow a horn so everybody could see you before I kill you.
- So, that's the way you will die …

D. Ramiro eat, drunk and then climbed to the tallest tower of the castle and blow the horn. When his son heard the sound the horn, he gathered all vassals and went to the castle to help his father. There was a big fight between Moorish and Christians and Alboazar was killed. After this, Ramiro took his wife and on the way back home by boat they were discussing.
- This is a good day to forget the past and start a new life…
- This is a good day to died.

Saying this, she dived into the water and died. A few months later Ramiro went to the moorish castle again and took Zahara to marry him. By this she became Christian under the name of Ortiga and they lived happy forever and ever.

The legend of almond trees (Lenda das amendoeiras em flor) – a successful love history between a couple from different cultures with happy-ending.

Once upon a time, a beautiful princess from the north named Gilda married a Moorish king (a rich, powerful and brave sultan named) and they went to live in Algarve (south of Portugal).
    The sultan was in love with his wife and was always trying to please her. Gilda was really beautiful with a tender blue eyes, white skin and long blond hair. But she never smiled since their arrival to Algarve. So, one day, the sultan said:
- My dear queen, love of my life, my shinning star, my sugar baby, white snow of my dreams, tell me: are you unhappy? Don't you love me anymore?
- I love you very much since the first day I saw you… I left everything for you …
- So, what can I do to make you smile? I will be your slave, I will do everything to make you happy…
- You can do nothing for me… You know that I'm in love with you and I will never live you, but… I miss my white and cold country… I miss the mountains and the fields covered with snow…
- Hum, I have an idea … Servants, come, all of you … Go and plant almond trees everywhere…hundreds, thousands, millions of almond trees Go…

So, next spring, the king said to his wife:
- It's springtime… Come my darling, come with me to the balcony and breathe some fresh air. Smell and look…
- Oh! My god… I'm dreaming …It's beautiful… I can't believe … The fields are all white, just like in my country. I'm so happy!

The princess was smiling looking at millions of white flowers from the almond trees. With the truth he tricked her beloved wife and they were happy forever.

The stone soup (A sopa de pedra) - the trickster is a smart and hungry priest that sees himself in a funny situation.

Once upon a time, there was a priest traveling around the world, visiting monasteries, walking along only with sandals. This makes him tire and hungry. One day, the pilgrim walked so long that he had to sit, just next to a house isolated in the middle of a forest. He could hardly speak, so tired he was. The owner of that house didn't invite him to come in and asked from the window:

- Good afternoon, priest. What are you doing around here?
- I'm going to visit a monastery. Yesterday I went lost and I've got no food. I'm so tired and I'm so hungry! Ah...
- Poor priest! But I can do nothing for you ... Bye.
- Wait, wait ...If you excuse me, I will make a stone soup here...
- A stone soup? Are you crazy?

Said that, the priest chose a stone, after hesitate between 4 or 5 stones, went to the well and wash the stone. The farmer left the house, curious about the soup.

- Could you bring me a pan?
- You can take that one.
- Now, I fill the pan with water and leave it to boil.
- Is that eatable?
- You'll see. I will do a magic soup for you ... I'm sure you have a good bacon at home...
- Of course, the best one ...here it is!
- I'm sure you also have the best cabbage...
- The best one... you said.
- A pinch of salt would give this soup a special flavor.
- Ok, no problem. Take it.
- You know what would be nice? Some slices of spicy sausage.
- I have made myself the best spicy sausages you have ever tried ...Take it.
- This soup is almost ready. It is only missing some drops of olive oil, the best one ...

The soup boiled a little longer and after it's done, the priest sit down and eat the soup. After eating all the soup, the priest went to the well, washed the pan and removed the stone. He put the stone in his pocket. After, he delivered the pan back.

- What about the stone? asks the farmer.
- The stone?
- Yes, the stone ...You keep it? Don't you eat it?
- Does anyone eat stones?
- No. So what it's for?
- Well, I keep it in my pocket for the next time a find a foolish man that shows no pity with a poor tired and hungry priest.

13. Old Man Coyote:
Working with the trickster figure in the EFL Classroom

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Abstract: Trickster, transformer and thief, clown, creator and cheat, survivor and storyteller – Coyote is all this and much more. The trickster figure is a powerful creative force with his ability to disturb the norm, introduce chaos and raise difficult questions. Yet, out of chaos a new understanding, a new connection may be made. The aim of this paper is to explore the use of trickster tales in the English language classroom by examining a constructivist model for teaching literature and culture. The trickster figure as a literary character is analysed with reference to the Native American oral tradition as well as to contemporary literature. A task-based approach characterized by co-operative learning is then presented as a means of raising learner awareness of cultural and linguistic factors. Finally, readers will learn about 'Coyote pedagogy' and maybe acquire a few trickster skills themselves...

Introduction

Old Man Coyote is a mythic trickster figure from various Native American cultures; he is the demiurge who made the world as it was known to these peoples before the white man arrived. Coyote is one of the First People who lived in the mythic period before humans came into existence. Stories about Coyote's deeds abound: He steals fire for the benefit of humans, places the stars and lays down cultural roles for men and women, but at the same time he is also a liar, a troublesome meddler and prankster whose tricks and schemes often backfire. In short, Coyote is the archetypal trickster known from cultures all over the world. And as such, he can be recognised by EFL learners, though seen in a new linguistic and cultural context.

Coyote is the ultimate survivor as he moves from mythic times into modern times – present-day Native American writers tell new Coyote stories with settings either on the reservation or in the city, but it is still the same Coyote.

Why has Coyote captured the imagination of so many writers? Why has he captured our continued interest? And how can he be worked with in the EFL (English as a Foreign Language) classroom? These are some of the issues that I want to examine in the following.

Culture – the 5th language skill

Language teaching not only involves linguistic issues but also involves experiencing other cultures, thereby breaking down prejudices and developing tolerance as well as giving learners an understanding of their own cultural identity. Therefore the teaching of culture must be part of language teaching along with the traditional four language skills; speaking, listening, reading and writing.

According to Tomalin & Stempleski (1993), elements of culture taught in the language classroom include the following categories (Figure 1).
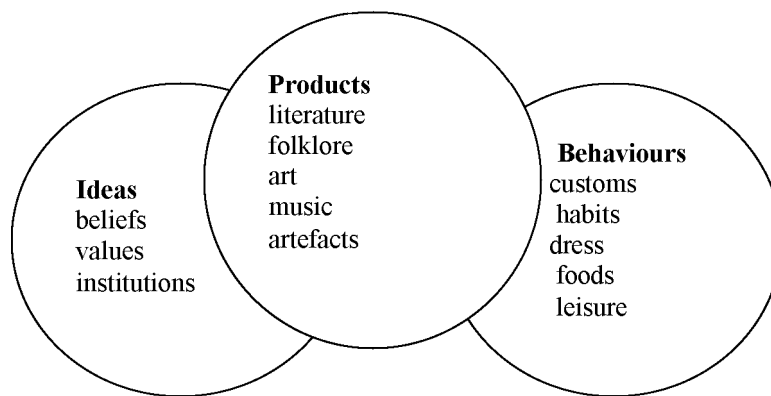
Figure 1. The elements of culture taught in the language classroom (Tomalin & Stempleski, 1993)

The three categories are interrelated. Products refer to a culture's institutions – sometimes referred to as "big C" culture. The two outer circles, on the other hand, refer to "little c" culture, but they are equally important to study when you want learners to gain understanding of and respect for the target culture. Nevertheless, it is my belief that literature not only offers a rich source of linguistic input in addition to presenting new vocabulary, but literature also introduces learners to other ways of living and other ways of perceiving the world. Learners must be culturally competent as well as communicatively competent.

There are numerous advantages of working with authentic literature. First of all, literary texts can deal with universal themes that are not always covered in ordinary course books. Good literature has the potential to expand the walls of the classroom, making the learners experience new worlds.

Secondly, literary texts are representational rather than referential. Referential language communicates at only one level and tends to be informational. The representational language of literary texts involves learners and engages their emotions, as well as their cognitive faculties. Literary works help learners to use their imagination, enhance their empathy for others and lead them to develop their own creativity.

Finally, literature lessons can lead to public displays of learner output through posters of learner creations e.g. poems, stories or through performances of plays. So for a variety of linguistic, cultural and personal growth reasons, literary texts can be more motivating than the referential ones often used in classrooms.

The trickster figure

The trickster character is found in Native American cultures and oral and written literature. The figure varies from culture to culture, taking the form of coyote, raven, rabbit or any number of form, just as the name may vary but the essence is the same. The figure is neither good nor bad, not even amoral; trickster simply is! Trickster can change shape and even gender and he/she/it is known for having an extreme appetite, seeking food, power and sex.

Trickster has two roles; that of the bungling fool who is foolish and capable of doing mean things, who is obscene and who appears in low comedy, and that of the culture hero who is capable of doing good acts, and who is sacred.

Coyote is one of the Animal People who were here first – before there were any real people. Legend has it that, at the beginning of the world, Coyote oversleeps and

must keep the name that no-one else wants. The Spirit Chief gives Coyote special work to do in preparation for the coming of the "real people" and gives him special powers. To Coyote's twin brother, Fox, is given the power to bring Coyote back to life should he be killed. Spirit Chief also points out to Coyote that he has two inescapable natures: one to do good and one to do foolish and mean things. "That you cannot help. It is your way", Spirit Chief tells him. Coyote's careless behaviour causes a lot of misfortunes, but although he often gets into trouble, he usually gets out of it with only a little hurt and humiliation – a fair price to pay, he seems to think!

The trickster figure is a paradoxical creature with its double character; he is a culture hero, yet also a destructive force. The many stories about him all testify to this double aspect of his character; he is good yet bad, clever yet foolish, sacred yet profane. And often at the same time.

Trickster tales are often funny, but as Datlow and Windling (2007) point out, you should be careful not to mistake him for a harmless buffoon since "Trickster can be dark and deadly to encounter. At the very least he'll deceive or rob you blind; and even the gentlest brush with Trickster is likely to turn your life upside down."

Trickster tales

From the very beginning, Coyote is part of the great Native American oral tradition; the trickster makes frequent appearances, and, as mentioned earlier, he is variously seen as the bungling fool and as the culture hero.

Oral stories tell us about the characteristics of the trickster: Coyote the wanderer is condemned to be a perpetual wanderer as a punishment for his gluttony, Coyote the thief steals for the sheer pleasure of stealing, Coyote the outlaw discovers taboos by breaking them. As a culture hero, Coyote brings fire and daylight to the people (though also death…). He positions the stars in their proper places and he teaches humans how to live (or not to live!). As trickster, he is greedy, thieving and devious. Even though he often ends up humiliated, he is always on his feet again in time for the next tale, as cocky as ever.

Even though trickster as an archetype can be traced back to Native American mythology and oral tradition, he is very much also a contemporary figure. This, I believe, is part of his appeal. Contemporary storytellers have put their own twist on traditional trickster myths, using the old stories as springboards for creating new trickster tales for our time.

Poet Simon Ortiz refers to Coyote as "The existential Man / Dostoevsky Coyote" in his poem *A Good Journey* (Bright 1993).

> "…you know, Coyote
> is in the origin and all the way
> through…he's the cause
> of the trouble, the hard times
> that things have…
> Yet, he came so close
> to having it easy.
> But he said,
> 'Things are just too easy…'
> Of course he was mainly bragging,
> shooting his mouth.
> the existential Man,
> Dostoevsky Coyote."

This is not only Coyote as creator, but Coyote Everyman, whom we recognise and identify with because the human aspects are emphasised.

In the following I want to turn to Coyote stories for children and reflect on their use in the language classroom. I have chosen to focus on three picture books because these were part of a "trickster course" I taught a group of teacher students. The books were analysed and discussed in class, and then my students designed teaching plans for beginners' and intermediate level in the Danish school which they then presented along with their didactic reflections.

English is a core subject in the Danish school and is taught early in the school curriculum. In order to avoid English becoming a mere communication tool, it is adamant that learners are introduced to the culture and literature of English-speaking countries from the very beginning.

The trickster figure has special appeal to children because of his ability to triumph over larger foes not by physical strength, but by wit and cunning. In addition, trickster tales speak to us about the strengths and weaknesses of humankind.

Gerald McDermott's picture book *Coyote – A Trickster Tale from the American Southwest* (1994) presents Coyote as a vivid example of human vanity, and his misbehaviour brings him misfortune. The comic nature of the trickster as troublemaker is celebrated in this picture book that tells the tale of how Coyote got the colour grey when he originally had the colour blue. Coyote goes dancing and flying with a flock of crows who lend him some of their feathers, but he soon becomes rude and boastful so the crows take their feathers back with the result that Coyote falls down. He ends up "soaked and covered in dust. To this day, he is the color of dust. To this day, his tail has a burnt, black tip. To this day, Coyote still follows his nose. He has a nose for trouble. He always finds it." (McDermott 1994). The child reader will recognise Coyote the clown, but also Coyote the destroyer of peace and Coyote the creator of new perspectives on things.

An additional example of Coyote the clown is to be found in Thomas King's *Coyote's New Suit* (King 2004). Here we meet a self-absorbed Coyote who is quite fond of himself and his wonderful suit. One day he meets Raven who hints that his suit may not be the most beautiful; "Raven flapped her wings and stretched her neck. 'It's okay, I guess', she said. 'Okay?', said Coyote. It is certainly more than okay.' 'Actually', said Raven, 'it's pretty ordinary. And tan isn't a very exciting color.'" (2004) Suddenly Coyote starts noticing other suits; Bear's is very impressive, Porcupine's is sporty, Raccoon's is absolutely chic, and Skunk's is perfect for formal occasions. So Coyote starts stealing the other animals' suits, making Bear look "a little bare" as Raven comments. When the other animals have nothing to wear, Raven makes the unusual suggestion that they go steal clothes hanging on ropes near a camp of human beings on the outskirts of the woods. Meanwhile Coyote has a closet full of suits and Raven suggests he has a yard sale. Up turn the human beings, and while they dress up in the animal suits, the animals wearing human-being clothes appear. The situation threatens to get out of hand, but luckily wise Raven is there to set things right. And once again Coyote escapes unhurt and, apparently, as cocky as ever: "'I don't know what all the fuss was about', said Coyote. 'None of those suits is as wonderful as mine'." (2004) Children will be amused by Coyote's foolery, but they will also recognise the didactic message: the consequences of wanting more than you need may result in disruption and unrest. It is the task of the clown to be unruly, disruptive and outrageous, but quite serious statements can be made in the guise of foolery and humour.

The picture book *Coyote in Love with a Star* by Marty Kreipe de Montaño (1998) takes Coyote into a recognisably modern world; unemployment on the Potawatomi reservation in Kansas is high, Coyote is lonely and bored so he moves to New York City in search of a job and a friend.

He finds a job as a "Rodent Control Officer in the World Trade Center" but as it turns out, he is homesick and "On clear nights, Coyote would escape the noise and hurry of the city by going up to the observation deck to watch the stars as they danced across the sky" (1998). And one night he falls in love with one of the stars and begs her to dance with him. But he soon realises it is a cold, lonely world among the stars, and so he begs to be released and is dropped by the star. When his body hits the ground, it creates a lake in Central Park: "And that's what became of Ol' Man Coyote. So now, whenever you hear coyotes howling at the night sky, you know they're scolding the star that dropped their grandfather. That's what the people say" (1998).

Here we meet a Coyote figure that has been toned down and whose trickster character and shape changing abilities are only referred to in passing; a softer version of the adult version of Coyote.

Precisely because he acts irresponsibly, Coyote helps define responsibility. When he ignores established conventions or crosses traditional boundaries, he also initiates acts of change and transformation – for good or for ill. The didactic aspects in these picture books are not lost on the child reader: Coyote has no moral or social values, yet through his actions the importance of such values is stressed. Children will immediately realise that even though Coyote is funny (he does everything wrong, he messes everything up), he is a warning too.

In psychological terms, trickster is viewed as an expression of the shadow side of a culture, the embodiment of all that is repressed and disowned. In recognition of the trickster within, we delight in his outrageous escapades, but we also enjoy his punishment when his tricks have failed, his ego has been deflated, and chaos has been restored to order. As Gary Snyder puts it: Coyote "refers to something in ourselves which is creative, unpredictable, contradictory: perhaps our trickster human nature" (Bright 1993). We recognise Coyote and delight in him precisely because we will be as imperfect as he is. Another didactic aspect of these picture books is the way the stories are told twice: through the text and through the illustrations. The illustrations focus the reader's attention on specific aspects of the story and cause the reader to interpret them in specific ways.

Such picture books employ a kind of parallel storytelling, where text and illustrations tell the same story and thus must be worked with simultaneously. The illustrations have narrative responsibility. The reader can pick up elements of the plot, characterisation, and themes from information shown or acted out in the illustrations whether or not it is also told in the words. So text and illustration share the role of storyteller. Foreign language learners benefit from this double narrative; lack of linguistic skills can be compensated for by the support the illustrations give. When the reader is made to consider both text and illustrations, picture books can work as powerful cultivators of imaginative, creative and critical thinking skills.

Trickster in the EFL classroom

I have chosen a theoretical model based on Constructivism when using literature to teach culture in the EFL Classroom. Constructivist approaches to language teaching promote active learning. The teacher's role is that of facilitator: he or she must create conditions for effective learning by asking questions and providing guidelines for the

learners. Since learning is an active, social process, it is important that learners interact with each other in order to arrive at an understanding of the topic at hand.

Task-based instruction emphasises interaction, conversation and language use. Focus is on authentic language and meaningful tasks. Task-based instruction does not simply focus on accuracy of language forms, but turns attention to content, fluency and learner confidence.

Jane Willis (Willis 1996) has determined the three stages of a task-based lesson as follows:

- Pre-task: The topic is introduced by the teacher and the learners are given instructions on what they are to do at the task stage. Likewise, vocabulary necessary to complete the task may be provided.
- Task cycle: Learners complete a task in pairs or groups while the teacher has the role of councillor, monitoring, asking questions and offering encouragement. Having completed the task, the learners prepare a presentation of their findings to the rest of the class.
- After-task: Focus is now on the language structures used by the learners.

Task-based instruction is a learner-centred approach, it allows for meaningful communication and it exposes the learners to a variety of language forms. It is an approach that is characterised by cooperative learning which builds on a Constructivist view on learning: Learners build their conceptions of the world through interaction with other learners. They are also taught social skills (e.g. acknowledging another's contribution, thinking cooperatively and in terms of the group rather than individualistically and competitively). The group organisation also gives each learner more speaking time, which in turn can help strengthen hypothesis formation/testing and the possibilities for automation of linguistic features. There is a need for "pushed language output" where the learner needs to use all his/her resources to communicate as this is an incentive for improvement of linguistic resources.

Coyote pedagogy

To be on "the coyote road" in Native American legends means to be headed to a wild, unpredictable and transformative destiny. When you take Coyote's path, you must walk warily, Datlow and Windling (2007) claim, since "one thing's certain. He's going to shake you up. And probably have a good laugh about it, too".

Most language teaching approaches based on Constructivism emphasise the teacher's role as that of facilitator, asking the learners questions, wondering aloud etc. This fits the so-called Coyote teaching – a cousin to the Socratic method with questions being asked. The questions asked by a coyote teacher, however, are less focused, less ordered. The trickster figure is a character who lives "in between", answering "yes" and "no" at the same time and sincerely meaning both! Therefore, he is a frustrating figure who offers no real answers, only more questions. Coyote is the embodiment of contradiction and paradox, and so is the coyote teacher who delights in disrupting – and thus reshaping – the views of the learners.

The coyote teacher works on the basis of three principles (Hoefler 2009):

1. The principle of disruption: Coyote is a boundary-breaker and a disruptor of things, and so the coyote teacher will try to disturb the learners and make them question their accepted beliefs and methods for doing things. If learners become disturbed enough, they will seek their own answers, and coyote teachers know that the road (i.e. the process) is more important than the destination (i.e. the answers).
2. The principle of chaos: Coyote is often the cause of chaos, and when the coyote teacher creates chaos in the classroom, it often allows for new connections, new understandings – in short, learning.

3. The principle of discomfort: Nothing is more discomforting than difficult questions, and it is the task of the coyote teacher to help learners discover such questions and then push them to seek their own answers.

Teachers should build on and develop the knowledge that learners possess, but at the same time allow the disruptive and creative powers. Disruption and apparent chaos may be used as means of raising learner awareness. Sometimes we need to unsettle things a bit and allow for new approaches and new solutions to given tasks. Again, it is the process that matters, not so much the end product!

Conclusion

In order to "make culture happen" in the EFL classroom, it is important to use a variety of learner-centred approaches and activities. Especially when working with young learners who are not literature specialists, it is important to employ creative activities. Using learner-centred approaches like for instance task-based instruction can help learners acquire the confidence to develop, express and value their own responses to the literature / culture in question.

It is essential that learners work with authentic material like literature. Learners are thus exposed to language that is genuine and undistorted (as opposed to the language often found in course book systems). There is also a huge cultural enrichment to gain from reading literature in the target language; learners can discover the thoughts, beliefs, customs and values of other people.

To sum up, stories like the ones mentioned can allow learners to experience diverse cultures thereby also exploring their own cultural roots. Stories can enable learners to empathise with unfamiliar people and places offering an insight into different traditions and values. They can reveal differences and similarities between cultures around the world and, last but not least, stories can bring delight into the EFL classroom.

Much like trickster's appearance in a story can shake things up, his appearance in the classroom may also "shake things up" and result in imaginative freedom and creativity. Coyote is timeless, and so is the telling of Coyote stories. As the poet Simon Ortiz says about Coyote (Bright 1993):

> "He'll be back. Don't worry.
> He'll be back."

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14. The Mexican huehuenche and the Nicaraguan güegüense

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The theme of the *huehuenche* has many faces. In the first place, the way of writing the word varies from country to country and from epoch to epoch. *Huehuenche* with aitches and *güegüense* with gee plus you with dieresis plus ee ess ee at the end are common as is also the short form güegüe (again gee plus you with dieresis). The Nicaraguan folklorist, Enrique Peña Hernández discusses the origins of güegüense:

> "In accordance with the research of the very eminent Mexican Nahualist, Don Cecilio A. Robelo in his *Dictionary of Aztequisms or Garden of Aztec Words* (México D. F., 3rd edition, 294) regarding the term *huehuentzin* (from *huehue*, old man; *tzin*, reverential diminutive) it evolved into a form to resemble Spanish: *huehuenche* or *güegüenche*, used in Mexico to designate the old Indian who directs the religious dances that they carry out or represent in the sanctuaries, like Guadalupe. [...]

> "As is well known, Nahuatl or Nicaraguan Nahua, in its phonological aspect, softened up or better said, it became less harsh.

> "Thereby we see that the Tepec root, "hill," that in Mexico stays with the stress on the last syllable, almost harsh: *Chapultepec, Tehuantepec*, etc., in Nicaragua becomes *–tepe*, as an ending with the stress on the second – to – last syllable: *Masatepe, Jinotepe, Coyotepe, Motastepe*, etc. In the same way, the term *güegüenche* softened up to *güegüense*, amongst us [...]

> "Since the linguistic tendency is to write as one speaks, when dealing with a "Spanishified" diction formed in our homeland, the appropriate, adequate and logical approach is the form *Güegüense....*" (http://www.laprensa.com.ni/archivo/2005/diciembre/03/literaria/)

Furthermore, the attitude toward the term varies not only from country to country but also from epoch to epoch. During the epoch for the Mexican 19th Century, with the title of a pamphlet published June 15th 1822 in Mexico City, *El Pensador Mexicano* (The Mexican Thinker: José Joaquín Fernández de Lizardi) was asking himself, apparently with incredulity: "Will they dress our emperor like a *huehuenche*? (*Obras, XII*, 77) A contemporary of the *Pensador*, Fray (Father) Servando Teresa de Mier, seems to scorn the *huehuenche* when he writes that they were "ridiculously dressed characters." (*Op. cit.*, note 5, 78)

In the 20th Century, Francisco Javier Santamaría in his *Dictionary of Mexicanisms* gives us more details and less subjectivity when he indicates that the word came from the Nahuatl language, or as he writes: "from the azt. [Aztec] *huehue*, [which meant] old and from the reverential particle *tzin*." He continues explaining that it was a "Traditional character among the Indians of Aztec origin, disguised with a mask and and outfit that represents some animal and sings and performs the dance, causing a whip to snap." Then he cites six sources referring to *huehuenches*, almost every one indicating scorn in the use of the word with phrases such as "the viceroyal custom of gaping at the Indian [and...] making fun disrespectfully of them calling them *huehuenches* in a scornful way." (604)

Santamaría has a reference to what seems to be an alternative orthography of *huehuenche: güegüenche* but in the plural form which according to him came "from the azt. *huehuetzin*," which meant "little old man" and which came to be known as "...the old Indian men who direct the dances in the Catholic temples in the fiestas and pilgrimages in the towns and on the ranches." Additionally he referred to "A certain

Indian dance in which the latter disguise themselves as old men." (581) He does not have an entry regarding the short form *güegüe*.

So, was Lizardi ridiculing the process of dressing the emperor for his coronation or was he writing seriously? The answer has two sides. He was ridiculing those who were worrying about the aspects of little importance and he was writing seriously regarding the necessity of dressing him appropriately. He begins with yet more questions:

> "So, are we dealing with the major determination of laying out the outfit in which our beloved Agustín I should shine on his coronation day? Then, so that that day be the most magnificent, nothing has been left to chance? That's the truth: the Comission has been in the library, master silversmiths, painters, tailors, embroiderers and whom else I know not have been quoted; a thousand books have been shaken up, thousands and thousands of engravings of all the emperors of the world have been consulted and the topic has been discussed with the greatest of thoroughness. (*Op. cit.*, 77)

These questions seem to be sarcastic but in the next paragraph we see the Pensador's worries: "All this care and attention to detail seems to me to be quite just and quite due to the hero of Iguala; but what doesn't seem to me to be appropriate is that they're going to make him ridiculous for us, wanting to adorn him with novelty." (*Op. cit.*, 77)

He gives us a list of the proposals ending with "They say that he will have his white tunic, white breeches with ruffles and gold spats. This will certainly be the most thought out in order to make him comparable to a legitimate *huehuenche* of the Indian dances." (*Op. cit.*, 77 – 78)

Therefore we can surely declare that the Pensador upon expressing himself by saying that if they're going to dress Iturbide as a *huehuenche*, he wasn't saying it approvingly. His expression in this way is simply an example of the biting sarcasm that he regularly employed. In this year of 1822, regarding the relationship between these two men, the Pensador was criticizing the emperor in several pamphlets but also showed an ambiguity regarding his support versus his disaffection with him. And then after his reference to the *huehuenche*, he writes: "What a big boob were I to be, as emperor, to allow myself to be dressed according to others' tastes. And worse, if the outfit which was designated for me was ridiculous and *de mojiganga*." (*Op. cit.*, 78) *Mojiganga* is explained by the editors of this volume in a footnote. They say that *Mojiganga* is "...by extension, any ridiculous thing that serves as a joke." (*Ibid.*, n. 6) Then he criticizes the several points of view, as many Europeanizing as Americanizing, saying that our step – mother is Spain and "What is heard in Congress but the Spanish *huehuenchized*? The editors of this volume explain that this adjective is "like *aindiado*.... which could be translated into English as Indianized and to which is given basically the same definition to *huehuenche* as we have from the other sources. (*Op. cit.*, 78 and n. 7)

Currently we see a rather different attitude regarding the *Güegüense*, that is, without the aitch and with the ess. The city of Diriamba located in the department of Carazso, Nicaragua, declares itself to be "the cradle of *El Güegüense* or *Macho Ratón*." An anonymous Internet author explains that "The city owes its name to Chief Diriangen, who was the chief of the indigenous tribe of the place when the Spaniards arrived in the 15th Century." Furthermore, Diriamba owes its fame to the annual production of a play. He continues by explaining that:

> "*El Güegüense* is a theatrical work that is presented every year from the 17th to the 27th of January during the patron saint festivals of Saint Sebastian, in the city of Diriamba, in the department

of Carazo and is well – known throughout all of Nicaragua. The play of *El Güegüense* is a synthesis of a fusion of the Spanish and indigenous cultures that combine theater, dance and music, being considered one of the most distinct literary expressions of the colonial era in Latin America.

"The original texts of the work were composed probably at the being of the 17th Century. All together they embrace 314 orations written in Spanish and Nahuatl by an unknown author who perfectly commanded the two languages. Three 'original' manuscripts of the work have been rescued. [...]

"The stories in the play revolve around encounters between *El Güegüense* (whose name is derived from the Nahuatl term, *güegüe*, which is an older person of great influence), his two sons and the colonial authorities represented by Governor Tastuanes and the Bailiff. [...] The interesting part of the work isn't in the plot, which is trivial, but it certainly is in the game of intelligence in verbal highjinks and in humor, often highly satirical. (___)"

Here we have a connection with the explanation of what a *huehuenche* is according to Santamaría as the description of the Nicaraguan play shows us: "*El Güegüense* carries a whip while the *Macho Ratón* is represented by a character with the head of a horse derived from the popular indigenous tradition." Several critics are cited:

"Salomón de la Selva [an eminent Nicaraguan writer] says of *El Güegüense*: 'A theatrical work of undeniable literary value which surpasses whatever we know of Greek theater before Aristophanes. It has scenes of the purest lyricism. It has passages of language so ample that Aristophanes himself doesn't exceed them.'.

"The Cuban poet José Martí, in 1844, qualifies it as a master drama of the post – conquest, written in a coarse dialect; a mix of low Spanish and corrupted Nahuatl. Some years later, the universal master and Nicaraguan Rubén Darío considers that *El Güegüense* is a work of primitive simplicity where the dialogues alternate between a monotonous and picturesque framework."

This anonymous author from the web site continues with declaring that:

"In the work of *El Güegüense* without a doubt are found a series of characteristics of the way of being of the Nicaraguan: hiperbole to recount things or deeds that happened to him or that happen to him in daily life, the astuteness of bringing about 'good' opportunities to situations, makng fun of this own tragedy, comicalness, euphemistic humor, a boastful air, the capacity to communicate with the other and the 'intelligent' use of words, the distrust of others, but at the same time gullibility regarding things promised to him, in short, a series of qualities of the very personality of the Nicaraguan which are reconcilable in any part of the world.

"In 2005, UNESCO (the United Nations Educational, Scientific and Cultural Organization) declared 'The Theatrical Work *El Güegüense*" as an Intangible Cultural Heritage,

"the 31st of January 2006, the Nicaraguan Parlament declared '*El Güegüense*' a Historical Cultural Patrimony of the Nation and the city of Diriamba, located in the Department of Carazo, Cradle of *El Güegüense* and,

"the 7th of February 2006 in the atrium of the Lesser Basilica of San Sebastián, the [then] President of Nicaragua, Enrique Bolaños Geyer congratulates Diriamba for having safeguarded the immortal Work [sic] of *El Güegüense*."

The role of *El Güegüense* is that of an astute character more than the equal of the Spaniard. This play has such popularity to the extent that it's found on YouTube *Sones y Danzas de 'El Güegüense.'* (http://www.diriamba.info/video_1.htm) Furthermore, where Diriamba declares itself "the cradle of *'El Güegüense' o Macho Ratón,*"

its site on the Internet proclaims "*El Güegüense* is the first character of Nicaraguan Literature [sic]."
(http://www.diriamba.info/?gclid=CLHiII2uw48CFRsIWAodFiYCYQ)

As another manifestation of the popularity of this character in Nicaragua we have the book with the title of *Un güegüe me contó* (A güegüe told me) by María López Vigil. It has had several editions. According to an article in La Prensa de Nicaragua (The Press of Nicaragua):

> "The publishing house Peter Hammer Verlag, Wüppertal, published it in 1992 and it was presented at the Frankfurt Book Fair at the commeration of the 500 years of the Invasion of America [sic] and the beginning of the Indigenous Resistance [sic].

> "In 1993 the book was published in Nicaragua, with the editorial seal Anamá and with the sponsorship of the Royal Library of Stockholm. It quickly went out of print.

> "In 1996 the Bank of the Book of Venezuela, national section of IBBY (National Organization of the Infantile and Juvenile Book), selected it among 'The Best of 1996,' with Special Mention, emphasizing the adaptation of the original work and the 'splendid illustrations' of Nivio López Vigil. (http://impreso.elnuevodiario.com.ni/2007/04/21/suplemento/nuevoamanecer/5541)

> "On Thursday May 3rd 2007 the children's version of *El Güegüense* came out published by La Prensa de Nicaragua. With the publication of the second edition of the book *The History of the Very Great, Badly Behaved, Rebellious, Cunning, Crafty and Always Dancer, the Bandit Güegüense*, also by María López Vigil with illustrations by Nivio López, brother of the author, who also illustrated the book *A güegüe told me*, there was a party at which she explained that the story of *El Güegüense* is very complex and although the book may be directed to children, it also can serve as a reference for adults, which, when they read it, it will facilitate their knowing and understanding the complex personality. According to the author, her greatest satisfaction was to present the work before a wide – ranging audience, to which she expressed that '*El Güegüense* is a sneer to power and therefore we all ought to be *güegüenses.*

> "In the presence of the author's words, those present showed themselves to be pleased, including Dora María Téllez and Julio Francisco Báez who were invited by López Vigil to offer compliments to *El Güegüense* as [among others] the [world famous Nicaraguan] poet Ernesto Cardenal did. [...]

> "Eduardo Báez, director of the Foundation Books for Children, which organized the event, commented that the celebration took place in this locality as an homage to the Diriambian people, considered the cradle of the *Güegüense* because of preserving its ancestral traditions, among them the dance and theatrical work *El Güegüense or Macho Ratón*. (http://nicaragua-jmendoza.blogspot.com/2007/05/versin-infantil-de-el-gegense.html)

In the version of *A güegüe told me* that I've been able to consult, published in Sweden in 1989, the author, María López Vigil, explains with apparent pride that "In this book we have reconstructed with some data and some imagination a very small part of the origins of Nicaraguan nationality." (Back cover) It's an exquisite book with her brother's illustrations. It consists of 40 unnumbered pages. It begins with its version of the creation myth of the Nicaraguans with a kind of indigenous Adam and Eve. It has the flavor of a fable because the animals speak to each other, apparently they have the ability to change themselves into other animals (for example, the rabbit changes into an ant) and they seem to be more astute than the indigenous inhabitants. As an ant, the rabbit serves as the savior of the natives of that time because he gives them the gift of maize. After several misfortunes, the story focuses on two young people and ends sadly with the arrival of the Spaniards. The indigenous elders are called *güegües.*" She does not explain who the *güegüe* was that told her this "legend" but finally she explains: "In this book we have reconstructed with some data and some

imagination a very small part of the origins of our nationality. There's a whole lot more to know and a lot more to tell. We shall do it all some day." (Epilogue without a page number)

According to *La Prensa de Nicaragua*:

"In July of 1990, before her edition and before having illustrations, Sergio Ramírez [a well – respected Nicaraguan author] said of this text: 'I want to describe this version of the *Güegüence* [sic] as above all with its beautiful wording, with everything that it has that is entertaining, that it is also well – informed and attractive in its narrative structure and language. I believe that it deals with a very able recreation that will enchant both children and adults. I also find attractive its very well concocted combination of Nicaraguan ingredients in its popular expressions, an entertaining and very descriptive amalgam of the ironic and comic situations of the text.'

"In September of 1990, before her edition and before having illustrations, Ernesto Cardenal [mentioned above] said of this very text: 'I find this book very important. It's an admirable version of our epoch of our bygone classic native population, very well updated and in the childlike and youthful popular language of our times, of the Nicaragua of today, of the *Güegüence* [sic] of today who still lives in our walls. This is a book as much for adults as for children and as much for children as for adults, like all the great works of children's literature. And surely the original *Güegüence* would be that way when he was depicted in a language understood by all but less so by the "dominators."

(http://impreso.elnuevodiario.com.ni/2007/04/21/suplemento/nuevoamanecer/5541)

Finally, the expanding popularity of the Nicaraguan tradition can be noted in an article with the title of "En vivo: Personajes de leyenda nicaragüense cobran vida" ("Live [on stage]: Legendary Nicaraguan Characters Spring to Life") by Mirta Luaces that appeared in *The Palm Beach Post* of La Palma Florida, USA, on October 13, 2006. At that time, the Folkoric Ballet of Nicaragua was to present the folkloric dance: *El Güegüense* at the Seminole Hard Rock Hotel & Casino, 1 Seminole Way, Hollywood, Florida.

In short, the *huehuenche* lives on from his beginnings in a blurry past, through the Mexican 19th Century until he gets to present – day Nicaragua. He has been used to attain various purposes. The play and the folkloric ballet illustrate the cunning that he had and continues to have. El Pensador used him to ridicule the adulators of Emperor Iturbide. The present – day Nicaraguans use it with the very positive goal of demonstrating their adherence to their indigenous inheritance and perhaps the most charming artifact is that of the book by María López Vigil, apparently for children but with an undeniable attraction for adults.

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V Reflection

15. Enacting reform initiatives: A matter of readiness

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Abstract

In an era of increased accountability, educational organizations need useful information for examining how the goals of the overall system relate to individual actions that influence those goals. This article describes how a particular framework can provide information that enables a more targeted assessment of how individuals influence institutional progress along the path of change.

Introduction

Michael Fullan's (2008, 2005, 2003) findings about the sustainability of educational reform consistently draw attention to applied practice in the school setting. He calls the practitioners in these settings 'new theoreticians' because their reflective process and action-oriented research provides vital feedback in the cycle of change by identifying what works and what does not. Contemporary research links the importance of reflective practice with improved student learning (Darling-Hammond, 1997; Schlechty, 2005). Findings inside and outside the field of education draw attention to the alignment of large scale initiatives with individual practices, if meaningful change is expected (Hargreaves, 2003: Senge, 1999).

None of our schools in any of our nations lack for a multitude of reform initiatives; but all of our schools in all our nations struggle with the mismatch between the intents of reform and the implementation and sustainability of those reforms. This struggle for alignment is regularly reflected in international journals of education (see Comparative Education Review and The International Review of Education).

Most experienced educators have been involved in change efforts in which the intended improvement goals of the larger organization were impaired by individuals on whom the success of a particular initiative depended. In many cases emotions such as confusion, cynicism and frustration are associated with implementation challenges. These reactions are, however, seldom a reflection of uninformed, stubborn or ill intended individuals (Cuban, 2004; Spring, 2005; Schlechty, 2005; Darling-Hammond, 1997; Fullan, 1999, 2003, 2005; Hargreaves, 2003). The findings of these educational historians and authorities on educational change portray instead: 1) a shift from an educational culture focused on teaching to one focused on learning, 2) a learning environment in which both teachers and their students worked in conditions of isolated individualism rather than collective instructional diagnosis and design, and 3) a situation in which former assessment methods may no longer be aligned with changing measures of accountability. In this work I suggest an additional force that may impair the alignment between reform intents and reform accomplishments. This is the concept of readiness.

The significance of readiness

In teacher education programs, we are very attentive to coaching aspiring educators about the developmental stages of children and the influence of readiness upon the cognitive process. But we seldom draw attention to the fact that adults too are influ-

enced by their readiness for new experiences. The focus, therefore, of this argument is directed to the experienced classroom mentors who play an influential and important role in shaping not only the strategies that pre-service novices employ, but their initial professional beliefs about how large scale reforms get translated to local schools and to individual classrooms. In recognition of the important roles played by mentor teachers who provide a major contribution to teacher education programs, I focus on them, the adult change agents, their professional evolution and their developmental process in accepting and adopting the myriad of initiatives that are integral to the professional life of educators. What follows is a reflection on one conceptual framework I have found to be a constructive conversation bridge in examining the relationship between institutional change initiatives and the developmental challenges faced by individuals in creating those changes.

Administrators in all organizations enjoy the ability to present positive evaluations of change initiatives to their boards of directors; but often such end of process summaries do not identify particular challenges in a way that could foster provision of targeted support to overcome those obstacles. A 'concerns' based model developed by Gene Hall and Shirley Hord (2001) proves useful in reflecting on how individual responses to organizational change assist in assessing attitudes that may influence individual readiness for adapting and adopting new initiatives. The plotting of particular individual concerns along a continuum of readiness for change helps the initiators of reform to assess not only how far along the path of change the organization is moving, but also what obstacles currently exist for the individuals on whom change depends and what forms of assistance contribute to implementing and sustaining desired changes.

In Hall and Hord's model, a hierarchy of 'concerns' classifies the perceptions individuals have about the change process. This classification enables a more encompassing assessment of how the larger organization is progressing toward the goals they have established. Specific concerns are reflected in a framework through which individual perceptions can be classified as indicating concerns related to self, concerns about particular tasks or strategies, or concerns related to the impact of the desired changes on others. Those changes may relate to student achievement, to collaborative teaching approaches, or to accountability issues. But whatever the initiative, paying attention to issues of readiness to accept changes in procedures is a key element in the success of that initiative. In the past five years I have worked with educators in training and their mentors who have found this framework useful in both urban and rural settings and from elementary or primary schools to university settings. For in any setting, the adults who are experiencing change commonly reflect a three-stage progression from concerns reflecting self focus, to focus on the actual task, to ultimately a more developed focus on the impact experienced by their students.

Classification concerns

As I draw attention now to Hall and Hord's (2001) Concerns Based Conceptual Framework and to how a developmental progression is reflected in the types of concerns expressed by individuals, I encourage you to contemplate how this model might be of use in other settings. Within the focal areas of self, or the task, or the impact, the classification of stages of readiness in Hall and Hord's (2001) framework include the following categories. They are: 1) informational, 2) personal, 3) management, 4) consequence, 5) collaboration, and 6) refocusing. The following chart delineates between a focus on self in the process of change, or a focus on the tasks themselves in imple-

menting change, or a focus on the impact of change on others and additional improvements growing from that broader focus.

Table 1. Stages of concern in the change process. Adapted from *Implementing change: Patterns, principles, and potholes* (pp. 56-79), by G. E. Hall & S. M. Hord, 2001, Boston: Allyn & Bacon

SELF			TASK	IMPACT		
Awareness Stage 0 Little or no concern or involvement	**Informational Stage 1** Aware of change and interest in learning more	**Personal Stage 2** Focus on effect on 'me', concerns about own role in process	**Management Stage 3** Focus on resources, efforts, and energy	**Consequence Stage 4** Focus on how the change effects the students	**Collaboration Stage 5** Change becomes collaborative, coordinate implementa-tion with others to ensure better student results	**Refocusing Stage 6** Work with others on adaptations or alternatives to innovation to achieve better student results

But what do these stages tell us about the needs of the person experiencing these 'concerns'? The awareness stage indicates little involvement with the innovation. The informational stage indicates more interest in learning the details about the innovation but more for purposes of discussion rather than actual use. The personal stage reflects uncertainty and inadequacy about the demands of the innovation as individuals begin to use new techniques or new data and grasp the level of invested time and commitment required. Once this personal conflict and the impact on self is resolved, the strategies and tasks of using the innovations become the focus in the management stage. The consequence stage shows that the individual is more focused on the impact on others, at least others in their immediate sphere of influence. When the thoughts and actions expressed indicate cooperation and coordination with others, one is at the collaboration stage. Finally, the refocusing stage focuses dissemination and useful modifications to existing techniques. These concerns reflect an evolution from a focus on self to a focus on task accomplishment to a focus on impact of the change whatever that change may be.

Conclusions

This work shared Hall and Hord's (2001) framework of concerns as a reflective vehicle to foster productive conversation with educators on the front line of change who play a major role in shaping the attitudes of those who they mentor. This framework enables a deeper examination of the change process and respects the developmental process of adults as they evolve professionally and adapt to various change initiatives throughout a career in education. It gives attention to how information about individual practices contributes to the collective wisdom of the larger organization in providing a formative measure of progress in what Peter Senge and colleagues call the "dance of change" (Senge, 1999).

An adaptive change process advocated by Ronald Heifetz and Marty Linsky (2002) cautions those who make policy to not push for changed mind sets, but rather to create opportunities for continued learning based on existing attitudes. They point out how this approach contributes to not only the implementation of change, but the sustenance of positive outcomes.

Traditionally much of the faultfinding about what needed changed in public education originated in university settings. Criticism today more often emanates from

the public arena. Parents, non-parental tax payers, politicians and corporations express a range of school related complaints ranging from kindergarten experiences to higher education expenses. One of the most painful critiques is that schools mean well, but that they do poorly. What accounts for such an assessment? Educators do not lack for creative ideas, accurate problem identification, innovative planning, or dedication to student learning. This presentation suggested that such misalignment of expectations and accomplishments is related to the concept of readiness and shared how the particular application of what Hall and Hord (2001) call "stages of concern" offers a more holistic assessment of a school system's progress toward the desired transitions and therefore a more targeted provision of assistance and resources.

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16. The helping relationship

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Abstract

All educators are helpers. This paper explores this notion in relation to mentoring and coaching. Drawing on feedback from workshops and interviews the paper discusses chosen positions on a directive to non-directive helping relationship continuum. The paper argues that a better awareness and skilful use of this continuum would help mentors, coaches, teachers and lecturers provide better support for those they help. Culture, values, beliefs and attitudes along with skills and emotional intelligence are seen as key determinants of successful helping. The paper identifies four themes resulting from the research; the need for training in helping skills; the bringing into the conscious of unconscious values and beliefs; the building of confidence to aspire to non-directive helping and the importance of nurturing.

Introduction

We are as educators involved in helping people to learn and overcome the challenges they face. This paper reflects upon the nature of this helping and draws upon workshops and interviews with educators all of whom have some engagement with mentoring. Of fundamental importance to the success of this kind of helping has been the quality of the helping relationship. Where there have been problems this can often be attributed to a breakdown of this relationship in some way, perhaps involving a lack of interest, care and thoughtfulness, a lack of engagement and understanding and an approach that is seen as too critical and directive. Where it has been successful it is characterised by a rich, dynamic communication that establishes excellent rapport, trust and confidence and sometimes transformational learning.

Supporting others is a complex activity that involves an emotional as well as an intellectual journey. It seems that the building of an effective relationship of the kind involved in mentoring and coaching is helpful in supporting people through significant learning and change events. Even where people fail to achieve particular standards or decide to pursue different routes, mentoring and coaching is still, perhaps even more, important.

This paper sets out to explore this relationship from the point of view of the helper in order to clarify the most effective approach. The learning journey involved is a shared one. It is not always a smooth undertaking, rarely so in fact, and requires a great deal from both participants.

This paper draws on a range of perspectives and will consider key philosophies that underpin mentoring, coaching and helping. The paper will also consider an international viewpoint reflecting on the implications of these forms of helping in a global context. Specifically the paper will seek to clarify the position taken on a given and self-constructed continuum of helping activities, moving from the directive to the non-directive.

The analysis of the helping relationship can improve understanding of different cultural viewpoints and through its focus on the individual's voice has the potential to build bridges across cultures. Certainly the development of mentoring and coaching is

now global and the need for addressing and acknowledging diversity is well recognised;

> 'One solution does not fit all and the person who knows most about their environment is the person who experiences it constructively, supported and challenged by their mentor/coach. Working with individual to identify differences and celebrate the uniqueness of all situations and circumstances reflects real universality and encourages best fit solutions.' (Law, Ireland, Hussain, 2007 p.85)

This international perspective is acknowledged in the diversity statement if the EMCC (European Mentoring and Coaching Council);

> 'recognising the value of creating global cohesion and clarity while honouring diversity ... listening to and absorbing the sincerity of people's beliefs, values, sense of purpose, differing views and acknowledging tensions.'

Helpers need to take a multi-cultural approach and to take account of ethnicity, religion, age, gender and other aspects of diversity. Relationships, power and responsibility, emotions, privacy are all viewed through the lens of culture. It is about achieving a common understanding.

Understanding a culture through listening to the life experiences of others is at the core of the helping relationship. It is recognised that the more directive an approach is, the more existing norms and cultural viewpoints are reinforced. This paper suggests that a non-directive, coaching approach may have certain liberating benefits.

The definition debate

There are many definitions of the terms mentoring and coaching. They can be used interchangeably or linked together as though they were the same thing. The use of the terminology is contextual and to some degree cultural,

> 'There are diverse styles of coaching and mentoring ranging from the direct instructional approach to non-directive facilitative techniques. There is no agreement which is the best approach. It depends on the individual client, coach/mentor and the contextual situation the stakeholders bring to the space of engagement.' (Law, Ireland and Hussain, 2007, p.52)

The definitions as used in this paper are also informed by Gallwey (2000, p.8.) who sees 'coaching as unlocking a person's potential to maximise their own performance. It is helping them to learn rather than teaching them.' It this aspect of helping that provides one solution to this definition debate and is also alluded to by Clutterbuck (2001), when he states that mentoring is a helping relationship in a developmental space.

For the purposes of clarity I shall use the terminology as currently understood in education in the UK. This is as expressed in the National Framework for Mentoring and Coaching (2005). A mentor then is a person charged with the support and guidance of those going through transition, such as trainee teachers, newly qualified teachers or colleagues undertaking a significant new role. A coach or specialist coach is that person who acts as a sounding board, an adviser and supporter of goals and directions set by the coachee. Coaching as a general term involves building rapport and trust, listening for meaning, questioning for understanding, prompting action and moving on to celebrate success. (NCSL 2005) I shall use the term helping to encompass all mentoring and coaching and general supporting behaviours.

Helping is now a key feature of many organisations. To a large extent the purpose, context, culture and history of the organisation will inform the type and quality of helping, mentoring and coaching that takes place. Of these the most important is the culture of the organisation. Implicit in mentoring and coaching is the notion of listening, questioning, challenging, developing awareness, through new learning and accepting responsibility. The more an organisation operates as a 'learning organisation' (Senge, 1990) the more likely it will be that that they will welcome the kinds of transformational learning that mentoring and coaching can stimulate. The more hierarchical and authoritarian the organisation is the less likely it will be that coaching will find a useful, supported presence.

The helping relationship continuum

Central to this paper is the importance of the philosophy and practice of the helper. Downey (2004) envisages a continuum of helping from the directive to the non- directive moving through a range of helping behaviours. At the directive end the helper is concerned with telling and instructing. This is the approach often associated with teaching and the one many of us experience from childhood. The 'helper' is the authority figure, the one in charge. Underpinning this is the belief that once instructed one will understand and know. It assumes that the helper does in fact know the answer.

At the other end of this continuum is the non-directive position. Here you do not instruct, direct or tell. Support is offered through rapport building, intelligent questioning and most importantly listening. Implicit at this end of the continuum is that people and especially adults will learn for themselves and learning is more embedded, more powerful and natural if it is under the control of and chosen by the learner. Downey further characterises this as helping that pushes or pulls. The element of who is in charge largely determines the nature and limitations of the helping relationship. Clutterbuck (2001) suggests that;

> ' the most effective relationships are where personal development is the desired outcome are those in which the mentee is relatively pro-active and the mentor relatively passive or reactive.' (p.17)

The helping relationship line up activity

This notion of a helping relationship continuum has been explored through a series of workshops designed to encourage reflection upon the chosen stance. Previous to this participants had been asked to consider who had been mentors in both their personal and professional lives, who had helped them in their learning. As a group the key mentoring and coaching skills were synthesised from the discussions and will be referred to later.

In a line up activity participants were asked to stand along a directive nondirective continuum and to choose a position where would they predominantly operate in their professional helping relationships? The chosen position reveals personal beliefs about effective teaching or helping. The participants were then asked to justify and explain why they have chosen that particular place to stand. The position in most cases was seen as context specific expressing the exact nature of their responsibility. Downey (p.18) adds more detail to the continuum beginning with telling – instructing – giving advice – offering guidance – giving feedback – making suggestions – asking

questions that raise awareness – summarising – paraphrasing – reflecting and listening to understand. The push end is directive in nature and the pull, non-directive.

The activity challenges the participant's view of themselves as helpers and reveals underlying assumptions. Most saw the more desired position to be that of continually moving along the continuum depending on the needs of those they are helping. There were however some, a minority, who have chosen a particular stance and find it difficult to see any value in the other end of the continuum. It is important to be clear that no one position on this continuum is better or worse than another. There are times when all positions are appropriate. It was interesting to note that the directive end is seen as less desirable by most participants – "I operate at the directive end for most of the time but would like to be more non-directive," was a common response.

This flexibility to choose an appropriate stance is supported by Downey,

> 'There will be times when you know the answer and the coachee is stuck; and there will be times when your coachee needs some feedback or advice. In these situations, to withhold an answer or some feedback would not be helpful.' (p.19)

The most important factor here is the need of the learner. Effective helping tunes into this need and adjusts its position accordingly. Clutterbuck (2001) suggests another continuum that runs parallel to Downey's. This is the stretching – nurturing continuum. He sees this as a complex duality; the macho fearless approach to the nurturing earth mother. In a very similar way positioning on this continuum is chosen in relation to the learner's need,

> ' The essence of effective mentoring is that the mentors have the facility to move along the dimension in any direction in response to their observation of learner need at the time.' (p.19)

The line up activity develops a realisation of the complexity of the role and is a good starting point to reflect on other polarities. The table below represents a compilation of other suggested continua from all the workshops:

DIRECTIVE	NON-DIRECTIVE
TELLING	LISTENING FOR MEANING
IN CHARGE	NOT IN CHARGE
SELF FOCUSED	FOCUSED ON OTHERS
CLOSED	OPEN
FORMAL	INFORMAL
STRETCHING	NURTURING
PARENT MODE (TA)*	ADULT MODE (TA)*
ONLINE	OFFLINE
LOW EQ**	HIGH EQ**
REASON	EMOTIONS
CLEAR FOCUS	WIDE FOCUS
IN CONTROL	LEARNER LED
YOUR SETTING	THEIR SETTING
CERTAINTY	UNCERTAINTY
UNBENDING	BENDING
KNOWING THE JOURNEY	NOT KNOWING THE JOURNEY
TIGHT	LOOSE
MENTORING	COACHING
DOING THE TALKING	DOING THE LISTENING
SHARING WISDOM	HIDING WISDOM

SOLVING THE PROBLEM	CLARIFYING THE PROBLEM
EXPERT	NOT AN EXPERT
FAST	SLOW
NON CREATIVE	CREATIVE
CRITICAL	NEITHER GIVING CRITICISM OR PRAISE
YOU SET TARGETS	THEY SET TARGETS
YOUR RESPONSIBILITY	THEIR RESPONSIBILITY

*Transactional analysis **EQ – Emotional intelligence

Loosely categorised under the directive, non-directive continuum these behaviours provide signposts for understanding value positions adopted by the helper. Whilst there are times when a directive approach is necessary and appropriate it seems clear that the non directive end of the continuum allows for empowerment, understanding, self growth and creativity. A philosophy behind the coaching approach is that learning is more enabled when owned by the mentee and not led by the mentor. The discussions of this range of helping styles reveals that the directive approach is the one most commonly cited by trainee teachers, new teachers and other new entrants to professions as leading to negative feelings. It is linked often to notions of criticism.

According to Clutterbuck (p.21) effective mentors hold back their wisdom and knowledge. The greatest value is for the mentee to develop his or her own wisdom not to borrow or copy that of another mentor. This is echoed by one of the value stances in the table: monologic to dialogic. A monologic approach tends to close down discussion. It is about saying this is how one should be, as a teacher or other professional, this is the right way, copy this and you will be successful. A dialogic approach on the contrary opens up the issue for debate, what kind of teacher will you be? It's a discussion...

In a series of ongoing semi-structured interviews with mentors, coaches and leaders this holding back of wisdom is shown to be one of the hardest positions to achieve. Almost all the interviewees reported that it was natural for them to want to direct and share their wisdom and knowledge and the urge to give advice and guidance is sometimes overwhelming. This is connected very much with the key helping skill of listening;

' You will find that whenever people are together, they're making an effort to be listened to, and are seldom listened to because the person they are trying to get to listen to them is waiting desperately and impatiently for a chance to be listened to himself or herself.' (Jackins, 1982, p.49)

The more experienced of those interviewed suggested that they worked consciously to be more non-directive and to engage in active listening. Many suggested that the non-directive, facilitative approach was more interesting and desirable. It was common however for people to value both positions:

" sometimes people need to be told, they can't see and they wont see ..."

There are times when this directive approach must be taken for the mentee's own good. And yet the same mentor, when considering supporting new teachers stated:

"I constantly need to reset myself to move toward the non-directive end. It doesn't matter where they are; they have to understand for themselves. Telling is not right for their stage, context and experience."

This particular mentor had the view that without an awareness of this continuum of helping behaviours it is difficult to move people on and that interestingly, it is often better to start at the non-directive end and move towards the directive end when it is necessary. The emotional intelligence of the people involved was also seen as a vital determining factor in the success of the relationship,

> " It is a two way thing, some people will put up barriers and won't let you in. Some won't let you listen to understand, they are too defensive ... with some people the blocks are so deep they wont let you go anywhere."

The central importance of emotional intelligence to helping relationships was shared by all interviewed. The understanding of this determined the value placed on relationship building,

> " It's vital to build a good relationship, but it's not easy, you can get it entirely wrong but, once you know someone well you can overcome this. Some people can be reflective but wont act upon it as they are afraid of change."

An interesting theme emerging from the interviews was that of timing, knowing when to be directive or non-directive, choosing your moment. Mentees have reported that effective helping involves the mentor saying or doing the right thing at the right time. Interventions at the wrong time can negatively affect development and learning,

> "There are times when people are not ready to explore, experiment or change. Sometimes when support or suggestions do not work it is because it is the wrong time."

Helpful also is an awareness of where the learner is on their journey, this notion of a journey is a useful metaphor,

> " I don't have the journey mapped out, we have a map but no real idea of what is going to happen. I say to them...it doesn't matter where you are now but where we go. The journey isn't clear, you have to allow for the possibility that the journey will be unique and individual."

The idea of travelling the road together is an indication that a non-directive approach is useful in walking alongside, doing with, rather than doing to. There was a view expressed that both non-directive and directive approaches are a vital element in the helping relationship mix. Of the two, being directive is seen as the most useful in that 'it works' whereas being non-directive on its own can be far less effective as it can be seen as withholding support. One of the participants stated that "we all need to be a child sometimes, we all need to be told."

There was also a feeling that helping should be seen as nurturing and is characterised by a personal but professional involvement close to parenting,

> "It is nurturing like a parent; you must care passionately, but not about them, about the outcome! It is for the organisation and for the individual. You help them find a pathway forward and shouldn't be partisan about their feelings. It should work for the person and the organisation. Leaders and mentors have a duty of care, this is very important but it's not a sentimental caring at all."

Another interviewee, a mentor of trainee teachers, felt that they had to learn how to operate at the non-directive end of the continuum. Her usual approach was to be very directive – "there was a lot to do in a short time and a lot of information to give." Her

mentees needed input and appreciated simply being told so they could get on with it. This mentor felt that by being non-directive she actually wasn't helping. For this mentor it was very much about expectations, her mentees expected you as the experienced mentor to have the answers. Moving away from this directive stance felt very much like giving up control, " it's hard, you need to have trust and nerve."

It is far easier to be directive although for this mentor and the majority of others, the benefits of being non-directive are clear. " It's easier for me to push at the moment but I would like to be more non-directive."

Part of this preference for being directive arises from the expectations and history of the particular individuals' role. All of the interviewees and most of the participants in the workshops were in leadership positions. It is seen as being better to be decisive and therefore directive as a leader. The whole relationship of helping with styles of leadership is interesting. The belief that mentoring is not simply for the benefit of the individual but for the whole organisation creates a context that will inform views and attitudes, "It's not just for one but for the whole cohort."

A consideration of the relationship between leadership, mentoring and coaching is beyond the scope of this paper but is of key importance. There is much in current leadership literature that advocates more of a coaching or non directive approach. Servant leadership, for example, encourages leaders to serve others while staying focused on achieving results (Greenleaf, 1998)

The desire of most mentors to be more non-directive may suggest that the systems people operate in prevent more open non-directive approaches. For some a directive approach was seen as a necessity due to time pressures but probably not the best for learning in the long run. One mentor suggested that he uses the directive approach for 'quick fixes.'

> "Deep learning, changing one's attitudes, beliefs and behaviours, happens most often at the non-directive end whereas at the directive end the mentee tends to adopt your solutions, this takes time."

An awareness of the continuum raises the mentor's performance. One participant thought it helped the development of a more sophisticated approach to balancing the practicalities of meeting requirements with a more hands off approach. She considered that working more often at the non-directive end is best for personal development, creativity and sustainable change. A number of themes have emerged from my research so far into this area.

First, a great many mentors have received little training in helping skills. They rely on their own experience, wit and wisdom. Where training has been made available this has led to more effective helping.

Secondly, the position taken on a directive non-directive continuum is very often unconscious. A great benefit of training and reflection through non directive helping is the development of control, understanding and a freeing up of these internalised assumptions.

Thirdly, there is a tendency to work at the directive end of the continuum but an aspiration to move toward the non-directive end, challenge rather than nurture. This may be the result of an increasingly target driven environment where there is little time for reflection and risk taking. It may also be true that teachers are often very comfortable with telling and giving information. They are less comfortable with handing over the responsibility for learning agenda to their students.

The start of each workshop began with asking the group to reflect upon who had helped them in their lives and what skills had been used. In almost all cases these

skills were affective and related to nurturing. We as educators might benefit from a closer look at the position adopted by the 'helping professions who take as their central tenant this idea of caring and nurturing;

'often it is not just the knowledge they pass on or the advice they give that makes them special. Rather it is how they are with us, and we with them. We can feel valued and animated and in turn value them. Out of this meeting comes insight." (Smith & Smith, 2008, p.57)

I began this research into the helping relationship because of my interest in finding the best ways to support students, beginning teachers and their mentors. The central importance of the relationship is clear but it is how this relationship is conceived, delivered or experienced that is at the crux of this discussion. The journey that we undertake as helpers is emotional as well as intellectual and mentors and coaches need a sophisticated understanding of the shades of help that be offered.

The wisdom that mentors possess should be worn lightly and shared appropriately at the right time and for the right purpose. It is hoped that this paper will help foster a deeper understanding of the role of helping thereby leading to improvement and greater confidence is supporting the learning and development of others.

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17. The use of blogs and discussion boards to promote reflective practice and critical thinking in aspiring school leaders

Crystal Machado

Educators in Higher Education must examine how innovative web-based technology can be used to facilitate the learning outcomes of the courses they teach. *"The Use of Blogs and Discussion Boards to Promote Reflective Practice and Critical Thinking in Aspiring School Leaders"* reports on a scholarship of teaching and learning (SoTL) project that an instructor initiated in her classroom in spring 2008. The author describes the manner in which the discussion board feature of Blackboard – a course management system - and weblogs, which are becoming popular and influential forms of online discourse, were used to engage aspiring school leaders in retrospective, anticipatory and contemporaneous reflection. The author concludes with a discussion of the findings, a description of the challenges that were faced, and steps that will be taken to maximize the pedagogical benefits of weblogs and discussion board in her classroom.

Rationale and significance of the study

The changing demands in higher educating in the United States coupled with a flurry of reports from the 1980s and 1990s called for fundamental changes to leadership preparation programs. This attempt to bridge the gap between theory and practice has contributed to closer analysis of curriculum and pedagogical practices. Attempts are being made to engage students in field-based learning experiences that allow for skill development and integration of theory, practice and research. The small but developing literature underscores the pedagogical potential of innovative web-based technology such as discussion boards (Garrison and Archer, 2001; Meyer, 2003) and weblogs (Farmer and Yu, 2007, Huffaker, 2007). Given that both discussion boards and weblogs offer new opportunities to encourage dialogue, critical engagement, and reflective practice they can serve as powerful tools and facilitate the integration of theory, practice and research. This paper contributes to these discussions by detailing the rational for this single subject qualitative research study, design, implementation and incipient evaluation of the project.

Theoretical basis for the study

Benefits of reflective practice

Our view of the world serves as a filter on our thinking. This, coupled by the fact that we often get accustomed to others directing what we do, and fall into routine ways of thinking, make it necessary for us to develop an internal mechanism that helps us to regulate and evaluate thought and action. Reflective thinking, which has been widely advocated by scholars (Dewey, 1933; Palmer, 1998; Schon, 1987), is a pedagogical practice that is becoming increasingly popular in school leadership preparation programs in the United States. Reflective thinking makes it possible for us to engage in self-talk (Costa and Kallick, 2000) hear our inner voice (Canning, 1991) and see things from multiple perspectives (York-Barr, Sommers, Ghere, Montie, 2006). It is believed that providing aspiring school leaders with an opportunity to sort, assimilate, analyze and evaluate knowledge will result in higher levels of metacognition (Hanna

and Ottens, 1995), deeper understanding and integration of knowledge and experiences (Butler, 1996, William and Wessel, 2004), self-awareness, inner leadership, and opportunities for continued professional growth (Argryis and Schon, 1992; Pavlovich, 2007; York-Barret et.al, 2006). If done properly, it should contribute to social equity and the establishment of a just and humane society (Van Manen, 1977; Zeichmer, 1993).

Types of reflection

Numerous scholars have contributed to conversation about the different ways of reflecting. The most popular approach and one that forms the theoretical foundation of this study is the typology advocated by Schon (1992) which includes *reflection-in-action*, a process of observing our thinking and action as they are occurring, in order to make adjustments in the moment, and *reflection-on-action* a process of learning from past experience in order to affect future action. Killion and Todnem (1991) expanded on this and added *reflection-for-action* or *reflection-to-action*. This type of reflection requires practitioners to envision the effect of interventions or actions on groups of students or colleagues, the learning environment, and/or the school as a community.

Tools to promote critical thinking and reflective practice

Bohm (1989) describes dialogue as a stream of meaning that flows among us, through us, and between us. This definition can encompass the inner exploration of assumptions and viewpoints that takes place within us. While we all have the potential to engage in this inner dialogue, we need to teach ourselves how to do so meaningfully (York-Barr et. al, 2006). Creating a supportive culture and space where students had an opportunity to reflect and learn was the intent of this project. Numerous authors have discussed how dialogue can be used to promote critical thinking and reflective practice (Bohm, 1989, Isaacs, 1999). Two influential avenues for online discourse that provide opportunity for dialogue beyond the classroom are discussion boards and weblogs (blogs).

Innovative web-based technology like discussion boards, a tool embedded in course management systems like Blackboard and ANGEL, facilitate computer mediated communication between students and instructors outside of the classroom (Freuhoff, 2008; Wang and Hsua, 2008). Discussion board provides students with the freedom to post as often or as little as they choose at their own convenience. In addition, it meets the needs of students who need more time to process information by providing them with additional time to reflect on the material, to ask questions, and to participate more equitably in class discussions (Meyer, 2003).

Blogs are websites created by individual authors who post ideas that accumulate in reverse chronological order on the same page. Students can personalize their own blogs, and control access to their site. Blogs have been gaining popularity at a phenomenal rate and have the potential to be used to enhance teaching and learning (William and Jacobs, 2004). In addition to facilitating self-publication blogs have the capacity to promote personal affirmation, empowerment, interpersonal sociability and collective bonding (Kaye, 2006; Poling, 2005). Both O'Donnel (2006) and Farmer (2006) maintain that blogging aids in the development of higher order learning skills, active learner centered pedagogy, authentic learning, associative thinking, and the creation of interactive learning communities.

Purpose of the study

The concept of 'prosumers' recognizes that students can move beyond the learning subject content and/or techniques of critical analysis and reach the level of applying such knowledge and integrating it as part of their intellectual growth within their daily lives. Reflective practice and critical thinking, which lie at the heart of this concept, became the key learning objectives of a Theories of Instruction course in spring 2007. This single subject qualitative research study was designed to explore the following broad research question: Can discussion board and blogs be used as tools to scaffold critical thinking and reflective practice in aspiring school leaders? The following three questions guided the study:

1. How frequently do students engage in dialogue with other students on discussion board?
2. How frequently do students post their thoughts on their personal blogs?
3. Is there a difference in the degree to which students engage in retrospective, anticipatory and contemporaneous reflection in the public forum (discussion board) and the private forum (personal blog)? Which forum lent itself to a higher level of thought and action?

Context of case study

Participants

A total of twenty graduate students, located at three different satellite campuses, who signed up for a Masters level Theories of Instruction course in fall 2008 participated in this study. For a period of fourteen weeks I, as instructor of the course, had face to face interaction with fourteen students at one campus, and interacted with the students at the two other campuses through the Compressed Video Network (CVN), better known as interactive television. In addition to the weekly three hour CVN session each student was required to use the discussion board feature of Blackboard – a course management system - and maintain a personal blog.

Data collection procedures

Data were generated from the following sources: (1) a preliminary survey which elicited demographic data and documented their experience with reflective writing and the value they placed on it, (2) their engagement of discussion board, (3) their personal blogs and, (4) their individual action research reports. During the first phase participants used the public forum (discussion board) to respond to the stimulus (literature, case studies, audio clips, you-tube clips, video, etc.) and bounce ideas off each other. They used the private forum (blogs) to introspect, confront personal beliefs and biases, process the application of course content to their own context, and generate workable solutions. During the second phase participants continued to respond to the stimulus material in the public and private forum. Additionally, they were encouraged to use their blogs to capture their reflective thoughts as they developed, implemented and reported on an action research study that they conducted in their classrooms.
Crème (2005) maintains that grades signal the importance of what is being taught; and Varner and Peck (2003) advocate the use of grades as a reward for energy invested in

the task. As such, ten of the fourteen discussion board threads were graded in increments of five. Students could secure a total of 50 points. Blogs were graded thrice during the semester, in increments of 20 points; students could score a total of 60 points. The point value for both discussion board and weblog posts amounted to 25 percent of the overall grade.

Data analysis

A qualitative data analysis software program, *ATLAS.ti* was used to code and categorize students' posts on discussion board and their individual weblogs. The frequency of posts were tabulated, and the degree to which each student engaged in the three different forms of reflection: retrospective reflection based on past actions, contemporaneous reflections – reflection in action, and anticipatory reflections devoted to future action, were recorded.

Findings and discussion

Although this study is small and limited in its generalizability, the data describes the degree to which students engaged in each of the three types of reflection in both the public and private forum, highlights some of the challenges faced, and illuminates some issues that merit further study.

Discussion board engagement

Discussion boards helped students to explore multiple perspectives and connections and arrive at fresh understandings, insights and connections. Over the course of the fourteen week semester students posted a total of 1313 posts. The number of posts ranged from 17 to 173. The average student posted a comment, question or response, on average, at least four or five times a week.

As evident from Table 1, thirteen students were ranked as 'above average' or 'advanced.' Only one student was classified as 'below average.'

Table 1. Degree of discussion board engagement over a period of 14 weeks

Engagement Level	Number of Posts	Number of Students
Advanced	101–173	4
Above Average	61–100	9
Average	41–60	6
Below Average	1–40	1

The data of four randomly selected students, from each of the four engagement levels were selected for in depth case analysis. Each student's posts were analyzed to examine the degree to which they engaged in each of the forms of reflection over the course of fourteen weeks, the results are posted in Table 2. With the exception of student 7, students of all engagement levels engaged in contemporaneous reflection to a higher degree than either retrospective or anticipatory reflection.

Table 2. Quality of discussion board posts of three students over a period of 14 weeks

Engagement Level	Student	Retrospective	Contemporaneous	Anticipatory
Advanced	Student 9	8	43	5
Above average	Student 14	5	35	5
Average	Student 7	27	22	6
Below Average	Student 18	2	15	-

Blog engagement

Students used their blogs as private journals. These blogs offered them a private place for honest accountability and review. They were initially provided with topics, and encouraged to write about connections between the topic and other things. They were encouraged to be honest and authentic and take risks in the content they write.

Some students used their blogs to reflect on the stimulus material that I provided in class, others used their blogs to reflect on the practices of their classroom, school, and school district; others used it to reflect on the work they were doing in preparation for their final action research project. While all students made a conscious effort to record their thoughts, feelings, beliefs, and observations, they did so with varying degrees of success.

Judging from the quality and frequency of the posts, see Table 3, it is evident that students found this course requirement challenging. In-spite of repeated reminders some study participants failed to post consistently on their blogs. Over the course of 14 weeks students posted a total of 109 posts. The number of posts ranged from 2 to 7, with an average of 5 posts per student. Thirteen students posted between 6 and 7 posts.

Table 3. Degree of blog engagement over a period of 14 weeks.

Engagement level	Number of posts	Number of students
Above Average	6 -7	13
Average	3-5	7

Table 4 shows the degree to which students engaged in each of the three forms of reflection on their personal blogs. As was the case on discussion board (see Table 2) students engaged in contemporaneous reflection to a higher degree than they did with either retrospective or anticipatory reflection.

Table 4. Quality of blog engagement of three students over a period of 14 weeks

Engagement level	Student	Retrospective	Contemporaneous	Anticipatory
Above Average (6-7 posts)	Student 2	5	18	2
	Student 8	0	10	1
	Student 20	-	18	5
Average (3-5 posts)	Student 7	9	11	1
	Student 11	1	18	4
	Student 15	-	4	2

The tone and content of students' blogs reveal the value they placed on the exercise. Some students, including one who fell in the 'above average' category, did not fully appreciate that blogs were intended to provide them with an opportunity to introspect, explore, integrate, and arrive at resolution.

> Finally....my very last post to this whole blog thing....which I'm not terribly fond about! I find that it's very difficult to sit and post to something when information could have just as easily been shared face to face. That's something that I feel is wrong with the youth of today....too much electronic communication.....I believe that there is nothing like a "good ole face to face" meeting to do a heart good. Not that I'm any way, type, shape, or form of a conservative...but I do feel that face to face communication and human interaction is the best form of communication. Now that I got that off my chest...(Student 20)

Comments by other students, towards the latter part of the semester, confirmed that they had begun to see the value of their blogs:

> I have to say that when I was writing my paper, this blog became important to reflect upon. I was able to see how I was progressing or regressing. I have been writing in a notebook like my students as part of my blog and that have really helped me. I find myself writing more each day and week about class. I write down the good and bad event of the day. I enjoyed looking at it. (Student 8)

> I'm really excited about changing BHS and most of our students' lives for the better!!!! I've really enjoyed writing these blogs and hope to continue to do so after this class is over. I guess I'll have to "branch out" and try new things by blogging when you aren't there to make me!!!! (Student 5)

The majority of the students succeeded in breaking away from the usual passive voice and densely referenced text familiar in academic writing. They began to take more risk and find their personal voice. Over the course of the semester the tone of the posts changed. Their comments reflected articulation of issues and problems, exploration, integration, and resolution:

> This entire process has really encouraged me to reflect on my teaching and my classroom practices. Am I doing what is best for my students individually? Collectively? Am I providing the very best method of instruction for them? The project has encouraged me to keep pushing for the horizontal and grade level meetings that my principal has promised. (Student 15)

Some students started to use their blogs to relieve stress and to celebrate:

> I am up at 3:26 in the morning stressed.... I am up at 3:26 in the morning stressed. It really feels comforting to be able to write in all down and express my feelings. I think I will go to bed. (Student 8)

> This last phase worked. My students outscored the other 2 first grade classes with a 93%. I was so happy that when the math coach brought me the scores I yelled right there in the hallway! The students were excited as well. One of my students that was absent begged me if she could make it up, which by this time, was too late. She wanted to be a part of this celebration! (Student 12)

Evaluation of the effectiveness of discussion board and blogs

Frequency of posts
As evident from Table 5 students who were ranked as 'advanced' for their engagement on discussion board, were ranked as 'above average' for their blog engagement (students 5, 5, 8 and 19). Similarly, students who were ranked as 'above above aver-

age' for their participation on discussion board were ranked 'average' for their engagement on their weblogs (students 1, 3, 4, 7 and 15).Three students who were classified as 'average' on discussion board showed 'above average' performance on their blogs (students 9, 12, 17). Only six students contributed consistently on both their weblogs and on discussion board; three of these were classified as 'above average' (students 11, 16, 20) and three were classified as 'average' (students 4, 10, and 13). More in-depth case and cross case analysis of data will enable me to explain these phenomena, describe more fully what worked, and did not work for these individual students.

Table 5. Level of participation across public and private forums.

Engagement levels	Discussion board	Weblogs	Discussion board & blogs
Advanced	5, 6, 8, 19	-	-
Above average	1, 2, 3, 7, 11, 14, 15	2, 5, 6, 8, 9, 12, 14, 17, 18, 19	11, 16, 20
Average	9, 12, 17	1, 3, 7, 15	4, 10, 13
Below average	18		

Motivation to post

Not a single student moved beyond the minimum requirement of blog posts, in terms of frequency. Some of the factors that could account for the limited number of posts are listed below:

Expectations. Comments in class like "I do not know when to write and how much to write!" and "What should be the difference between our blog posts and discussion board posts?" reveals that students found it hard to distinguish between the expectations for each forum. This could have contributed to the limited number of blog posts.

Past experience. Although every student in the class had written reflections for previous courses, this course required a higher level of critical thinking and reflection. The comment below, illustrates that students are not always accustomed to capturing their thoughts in writing:

> I learned that one of my weaknesses is in the recording of thoughts and ideas. I have a tendency to keep it all in my head. This has been realized through my difficulty in keeping up with appropriate blog entries, which was to serve as my record keeping. Some of the ideas that I had were lost because of my lack of efficient and continuous record keeping. Therefore, I know that next time I be more diligent in this aspect of the action research process. I have several future projects that I want to conduct next year through this method, and I am excited to see the results. (Student 2)

External locus of control. The majority of students seemed to have an external locus of control. High levels of preoccupation with the statewide testing, and the impact that the results could have on their careers was evident. One student said:

> ...my thesis twisted and turned a great deal over the last month. I had a few factors that slowed down this process for me....Testing...testing...testing...the last three weeks...the students have tested here...there...almost everywhere...that's a whole other research subject! (Student 1)

Other comments, in a similar vein, made me wonder if the educational system is doing enough to empower students.

Incentives. The tone of the content and frequency of their posts in the public forum, discussion boards, reflected high levels of motivation. Grades, coupled with the element of social interaction, appear to have been a powerful motivator with discussion board. At times it was hard to determine if students commented on others' posts to get credit, as is often the case in a pseudo community (Grossman, Wineburg and Woolworth, 2001) or because they had bought into the concept of a learning community. Grades were a powerful motivator on blogs as well; there was an increase in the number of posts prior to the first of the month, when I graded their blogs. However, grades, in the absence of social interaction, were not powerful enough to get them to post beyond the minimum requirement of seven blog posts. Giving students an opportunity to share their blogs with the public might lead to the reflective benefits that would have occurred had their writings been read and critiqued by a larger audience.

Students obviously need more support during the early stages of blogging. To help make the exercise more user-friendly and critically transformative, in future, I will expose them to typical blog posts, get them to critically analyze the content of personal and professional blogs, and discuss the pedagogical and professional benefits of using blogs as reflective writing tools. Together we will generate descriptive detailed guidelines that they can use when they blog. I will then initiate them into the use of 'low threat' 'getting to know you' type of ....blog memes (such as list of favorite TV shows, video games, movies etc.), encourage students to generate their own version of blog memes, and gradually initiate them into reflecting on critical issues and practices in their classrooms and schools.

Organization and quality of post

While the threaded nature of discussion board, afforded students an opportunity to contribute to multiple discussions, and interact with a wide range of students, it did result in writing that was fractured. At times, students had difficulty monitoring their own thoughts, and making connections across topics. The posts on blogs, although few and far between were superior, primarily because they were more analytical and reflective, and tied closely classroom action. This could be attributed to the fact that they were contained in a single self-controlled space, Students have the opportunity to monitor their own thoughts over time and maintain connections across topics, uninterrupted by the cacophony of others' voices resounding silently in the background.

The stimulus material used in class was used to spark off retrospective, contemporaneous, an anticipatory refection, however, apart from a few outliers; there was very little evidence of retrospective and anticipatory thought on both discussion boards and blogs. To get students to engage more actively in all three types of reflection, especially retrospective and anticipatory reflections I intend to include more explicit guidelines about what constitutes 'self-reflexivity' so that students learning how to reflect on their daily activities in a concise and analytical manner. In addition, I will provide students with an opportunity to complete summative feedback questionnaire at the end of the session.

Final thoughts

Reflection in, on, and for action provides feedback that can lead to significant cultural change in schools. Few will deny that the reflective process can be both messy and

complicated. Whether one chooses to remain a "developing performer or remain an "expert performer" (Butler, 1996, p.280) one still needs to make a choice, and invest energy into the process of reflection and continual learning. The objective is progress, not perfection.

While preliminary analysis confirms that potential of innovative web-based technology, like discussion board and blogs, it has established the need for further investigation of the pedagogical benefits of discussion boards and blogs. This study has also identified several issues in need of further study, which include: (1) finding the most desirable incentive for participation, one that will move students from a pseudo community that is driven by grades to a learning community that is intrinsically motivated; (2) finding the right balance between allowing students to self regulate, and the facilitation of student inactivity; and finally (3) providing students with a space that is private enough for them to find their voice, and public enough to benefit from social critique.

Further examination of the data will continue. To gain a deeper understanding of the learning outcomes of this preliminary study discussion board data, weblogs, and students' action research studies will be analyzed, using Garrison, Anderson and Archers's (2001) proposed four-stage process: (1) triggering (posing the problem), (2) exploration (search for information), (3) integration (construction of possible solution), and (4) resolution (critical assessment of solution). The results of this analysis will lead to the development of another scholarship of teaching and learning (SoTL) study in my higher education classroom.

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VI Special Needs

18. Math problem-solving and graphic representations

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Abstract

Graphic representations are frequently used in teaching children math problem-solving. Effective problem-solving requires the learner "to create a representation of the problem that mediates solution" (Goldman, 1989). Especially students with learning disabilities benefit from using graphic representations. However, many teachers have the impression that the multitude of graphic representations (Venn-diagrams, arrows, bars etc.) nowadays became very confusing for those children. This article describes an exploring study to find out if it is possible that one graphic representation is more effective than another one. The findings of the research suggest that there are no significant differences, with the exception of: Pupils using arrows when problem-solving perform significantly worse.

The amount of pupils involved in our study allowed also answering other interesting research questions. So we found no gender differences in the performance of basic math skills (addition and subtraction up till 100) neither in the performance of problem-solving skills. We arrived at the same conclusion regarding the performance of pupils of rural and urban schools. The findings of the research also suggest that there are clear significant differences between textbooks referring to the performance of the basic operations (pupils using traditional textbooks perform better than pupils using realistic textbooks) but at the same time they prove this is not the case for problem-solving. Finally the results suggest a very strong correlation between the mastery of the basic operations and problem-solving proficiency.

Introduction

Problem-solving instruction in Flanders (Belgium) is nowadays very different from math instruction before the mid-90's. Then the teacher taught the mathematics (the four operations +, -, x and ÷ etc.), the students practiced it for a while, and after that the students were expected to use the learned skills in solving problems. Today problem-solving is completely interwoven with math learning: 'Children are learning mathematics by doing mathematics' (Van de Walle, 2007, 39). Pupils learn and do maths as they solve problems. Separated problem-solving lessons are banished, at least theoretically (see further on).

Since the mid-90's problem-solving instruction also focuses more and more on the use of solution methods. First of all, students have to learn general problem-solving strategies such as: What are the facts? What do I need to solve? How can I translate the word problem into math operations? What is the answer? How can I check the answer? But the students also have to learn more specific strategies and especially all kinds of graphic representations of those strategies: arrows, bars, number lines, dots etc. However we have the impression that the multitude of all these representations becomes very confusing for the children, especially for those with learning disabilities and those at risk for math failure. An exploring research study can check if that impression is justified. Then, we can also question if it's better to choose one same graphic representation or not? So if the answer is 'yes', we can explore which representation is the best one.

The amount of pupils (N=1099; age of 7/8) involved in our study allows to formulate also other interesting research questions: 1) What's the teachers opinion on the shift from separated problem-solving lessons towards learning mathematics through problem-solving (= the so-called integrated approach)? 2) Can gender differences explain differences in the performance of math skills and problem-solving skills? 3) Do pupils in rural schools perform better than pupils in urban schools concerning math skills and problem-solving skills? 4) What is the influence of textbooks in developing the math and problem-solving skills? 5) Does the knowledge of the basic operations (in casu: addition and subtraction till 100) influence the performance of problem-solving skills?

Separated or integrated problem-solving lessons?

In current Flemish official curricula the word 'problem-solving' is not used anymore. Now the word 'application' is preferred. 'Application' has been introduced especially to banish the 'old' problem-solving lessons. Those lessons were given – ostensibly – separately. Pupils learned to count, to add, to subtract, to multiply, to measure, to make shapes etc. and also to solve word problems, but in separated lessons. Since the National Curriculum of 1997 (Ministerie van de Vlaamse Gemeenschap, 1997) learned skills have to be 'applied' directly in problem-based tasks. For instance, when pupils learn additions with fractions they have to 'apply' immediately - in the same lesson - these operations in solving problems.

Likewise the introduction of the word 'application' intended to base problem-solving more on 'real life'. Problem-solving lessons before 1997 were too 'scholastic' and had little to do with daily life situations. With the introduction of the word 'application' the National Curriculum tried to restore the link with reality, with the real contexts pupils are living in.

However we have the impression that, since problem-solving is an integral part of all mathematics, there's less attention for… problem-solving. On the other hand, separated problem-solving lessons obliged teachers to pay attention for learning to solve mathematical problems. Besides, problem-solving also demands specific instruction and methodology. Is it possible that this specific and attempted methodology will disappear? Finally, learned math skills can also be integrated through separated problem-solving lessons. Moreover, when pupils learned to calculate with percentages and also with fractions during the same week, then both skills can be applied in a separate problem-solving lesson. For instance: Albert got some money. He spent 1/5 of that money. What percent of the money is left?

In this context we questioned the 65 teachers participating in our study, about their opinion on separated or integrated problem-solving lessons. These teachers give math instruction to 8 years old boys and girls, in rural and urban schools all over West Flanders (the westernmost province of the Flemish Region in Belgium; 1 150 000 inhabitants). The results are very clear: 6 teachers preferred a separated approach, 19 of them preferred a completely integrated approach, and 40 teachers assume that a combination of the two is a better approach.

The 40 teachers choosing a combined approach explained their choice as follows: 1) Enough attention must be paid for the learning of solution methods. But then, the pupils are expected to use these methods in solving problems based on 'real life', 2) Especially pupils with learning abilities do profit more from separated problem-solving instruction. But, on the other hand they also have to learn to solve problems in different realistic contexts, 3) To become effective problem-solvers we still need to

focus on different problem types, and then pupils have to learn to recognize them in new and more complex situations.

The 6 teachers preferring separated problem-solving lessons, point to the need for pupils to learn basic problem-solving skills, saying that these must be taught through direct instruction.

Finally, the 19 teachers choosing a completely integrated approach, argue as follows: 1) Good math teaching will integrate all content areas: numbers, calculations, measures, shape and space... and of course solving problems, 2) Mathematics concepts and procedures can best be taught through problem-solving, 3) Pupils will gain an understanding of mathematics through classes that promote problem-solving, thinking and reasoning, 4) Good math instruction begins with problems. Pupils solve problems to learn mathematics, 5) Problem-solving puts the student's attention on ideas and sense making.

So, we can come to the conclusion that the majority of the teachers prefer a combination of separated and also integrated problem-solving lessons. According to them this approach is more effective, especially for pupils with learning disabilities.

Different problem types

Problem-solving instruction is pretty complex. First, there's the lexical content of the problem. For instance, the vocabulary of word problems for pupils at age 6 is more difficult than those for pupils at age 11. Secondly, the selection of the appropriate arithmetic operation (e.g., counting, adding, subtraction, dividing, multiplication...) to solve the problem can also be different. But even when the calculations are the same, there are still different types of word problems related to the semantic structure of the problem. A well-known typology of word problems is that of M.S. Riley, J.G. Greeno and J.I. Heller (1983). They distinguish three problem patterns: problems involving a change, a combination or a comparison.

Typically for 'change' word problems is the passage of time from past to present. For instance: Patrick had eight sweets (= past). He ate two of them. How many sweets are left (= present)? There are two types of 'change' word problems: a direct and an indirect one. 'Direct' means that there's a beginning and a change set. Pupils have to look for the ending set. The preceding word problem is an example of a direct 'change' problem. Another example: Danny got nine apples from his mum. He gives six apples away to Elisabeth. How many apples left does Danny have? $(9 - 6 = .)$

'Indirect' means that only the beginning or change set, and also the ending set are given. Pupils then have to look for the beginning or change set. For instance: Danny got some apples from is his mum. He gives six apples away to Elisabeth. Now, he has 3 apples left. How many apples did Danny have to begin with ? $(. - 6 = 3)$

In 'combination' word problems there are two smaller parts (i.e. subordinates) forming a whole (superordinate). For instance: Peter has eight sweets (1st smaller set). Derek has three sweets (2nd smaller set). How many sweets do they both have? (whole or larger set). Here also there are different subtypes. For instance, instead of looking for the larger set, pupils can also be asked to look for one of the smaller sets. For instance: Together Peter and Derek have eleven sweets (= larger set). Peter has eight sweets (= smaller set). How many sweets does Derek have?(= smaller set)

'Compare' word problems involves a comparison or a 'compare' relation: Peter has eight sweets. Ann has five sweets. How much more sweets does Peter have? Here also there are different types of 'compare' problems, corresponding to which quantity is unknown (smaller, larger, of difference). For instance, in the following compare

problem the learners have to look for the smaller set: Peter has eight sweets. Ann has three sweets less. How many sweets does Ann have? In our exploring study we focussed on one of each problem pattern (see further on: 9.3).

General problem-solving strategies

General problem-solving strategies cue students to complete some problem-solving steps. One such strategy is largely used in Flemish schools: the so-called Bears of Meichenbaum, designed by Bash and Camp (Timmerman, 1995). The four main steps of that strategy include 4 questions formulated by a bear: 1) What is the problem? 2) How can I translate the problem into a plan so I can solve it? 3) Do I still follow the plan? 4) Does the answer make sense? Why?

According to the questionnaire we used in our study, 26 of the 65 teachers use this strategy. Another 33 teachers use a similar one, for instance the so-called STAR-strategy (Gagnon, 2001, 10): 1) Search the word problem, 2) Translate the problem into a picture, 3) Answer the problem, 4) Review the solution.

Four teachers use other similar steps, and only two teachers never use a strategy. However, these general problem-solving strategies are no subject for our study. Many teachers and also commercial mathematics programs use also specific graphic representations. These representations allow the students "to create a representation of the problem that mediates the solution" (Goldman, 1989, 45). There is a wide variety of such representations. That's the reason why they are so interesting to research.

Specific graphic representations

Specific graphic representations are especially used to identify the semantic structure to facilitate problem translation and solution: Is it a word problem involving a change, a combination, or a comparison? Flemish curricula stress very much the importance of these representations in problem-solving instruction. For instance the math curriculum of Flemish catholic schools states: "Pupils have to solve simple word problems by translating these problems from words into meaningful graphic representations, e.g. using schematic diagrams with arrows" (VVKBaO, 1998, 48). In commercial mathematics programs we also find graphic representations using Venn diagrams (fig. 1.1), arrow (fig. 1.2), bars (fig. 1.3), number lines (fig. 1.4), cubes (fig. 1.5), cubes in a square representation (fig. 1.6). Some teachers also use representations of manipulatives and then group them using Venn diagrams, square representations...

Analysing these representations we found that most of them involve part-whole relationships. In fact, almost all pupils solve word problems as part-whole problems. In change problems spontaneously they identify the ending amount as a whole when the problem ends up with more. If the problem ends up with less, they identify the beginning amount as a whole. For instance: Patrick has eight sweets (= whole). He eats two of them (= part). How many sweets are left? (= part). The corresponding equation then is: $8 - 2 =$.

In group problems the larger group always represents the whole, because the smaller groups, i.e. the smaller parts, combine to form the larger group. For instance: Peter has eight sweets (= part). Derek has three sweets (= part). How many sweets do they have both? (whole) The corresponding equation then is: $8 + 3 =$.

To identify the whole in the compare problem, pupils instinctively add the parts to find the whole, when the total is not known. When the total (i.e. the whole) is known, they subtract to find the part. For instance: Together Peter and Derek have

eleven sweets (=whole). Peter has eight sweets (= part). How many sweets does Derek have?(= part) The corresponding equation then is: 11 - 8 = . Examples of graphic representations based on the part-whole concept are: Venn diagrams, bars, cubes, cubes in a square representation.
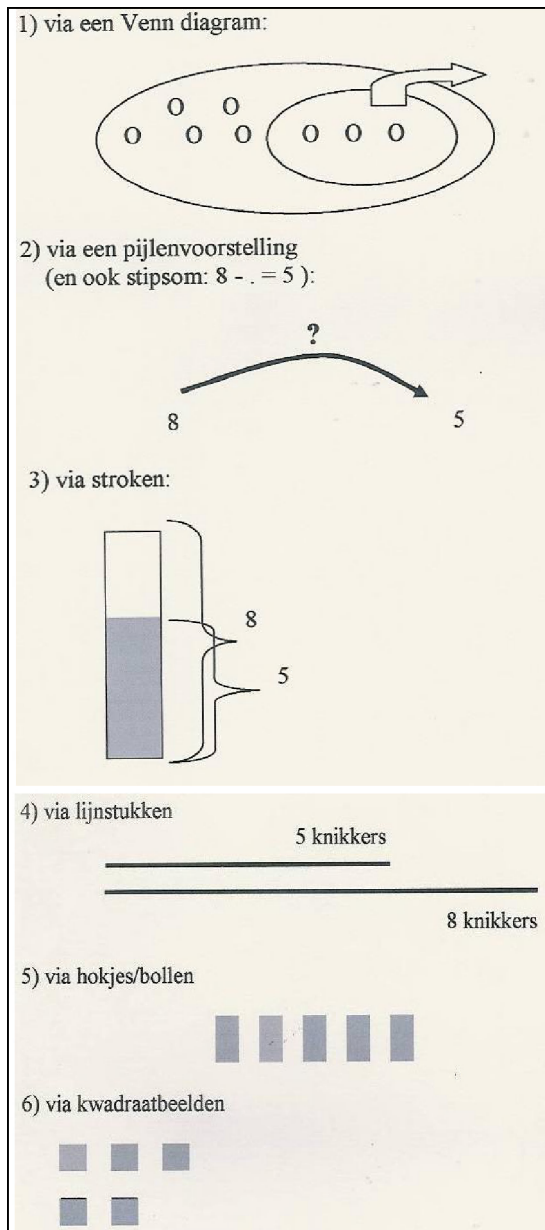
Figure 1. Graphic representations

On the other hand, some teachers and commercial math programs use arrows and also so-called dot-sums (i.e. missing-part sums; for instance: 8 - . = 2). These representations are based on a more ordinal concept. That ordinal concept has nothing to do with counting but indicates that pupils have to respect the chronological sequence of the problem. For instance, when pupils solve the problem 'Patrick has eight sweets. He ate some of them. Now, two sweets are left. How many sweets Patrick has eaten)' they first have to identify the 'beginning set' (eight sweets), then a change (minus some sweets), and finally the 'ending set' (two sweets left).

Nowadays, many Flemish teachers and also educational specialists share concerns regarding the very great number of all these graphic representations, particularly to learners with disabilities. Especially Raf Feys, a former lecturer at a Flemish teacher training school, voiced his concerns regarding the use of arrows and dot-sums (1998, 122-130):

1) First of all, the use of arrows and dot-sums is impossible when solving combination and compare problems. For instance, it is impossible to translate the following combination problem into a representation with arrows: John has eights marbles. Peter also has some. Together they have fifteen of them. How many marbles does Peter have? Translating into a dot-sum may be doable: 8 +. = 15. Anyway we notice that most commercial math programs only use these arrows and dot-sums for solving 'change' problems. To solve combination and compare problems pupils are taught to use 'part-whole' representations. Therefore pupils first have to learn to recognize the problem pattern (change, combination or comparison) and then to select the appropriate graphic representation.

2) According to Feys the pupils experience more difficulty in translating the problem into a representation with arrows or into a dot-sum than in solving the problem itself (even in solving change problems!). The word problem itself provides a greater concrete basis to find a path to solve the problem. Feys even observed pupils first solving the problem in a correct way and then afterwards translating the problem into a wrong representation with arrows or into a wrong dot-sum!

3) Finally, Feys stipulates that representations with arrows and also dot-sums are in fact very abstract. The passage of time (from past to present) prevents flexible problem-solving. Part-whole representations (bars, cubes, Venn-diagrams...) even more evoke flexible thinking. For example, pupils use spontaneously part-whole relationships when solving the problem 'John had some marbles. Peter gave him four more. Now John has 12 marbles. How many marbles did John have to begin with?' (even after 'restructuring': 12 – 4 = .) because it seems easier than to respect the chronological sequence of the problem using, for instance, a dot-sum (. + 4 = 12); easier, even for children with learning problems!

Referring to our exploring study we also analysed which graphic representation is most used in the eight most used math textbooks in Flemish classrooms for 8-years old pupils. We only screened the first 50 pages. That screening reveals a very differentiated picture. First of all the number of word problems in the textbooks is very variable: from 13 till maximum 47 (in the first 50 pages!). Concerning the use of graphic representations most of them are based on the part-whole concept. But we found also more ordinal representations, e.g. the use of arrows and dot-sums. Only one textbook never uses graphic representations.

Finally, in most textbooks the overwhelming emphasis is on the (easier) change problems. Even two textbooks present only that form. In most textbooks these change problems are followed by combination problems, and in the end by compare problems. In only two textbooks this is inverse.

These findings are very interesting referring to our study. For instance, if the study reveals that the use of a commercial program results in a better proficiency of problem-solving skills than another one, then an analysis of textbooks as we did above, can be interesting.

Research goal

Referring to the conclusions of Raf Feys (see above) we only can be pleased that almost all textbooks prefer the use of part-whole graphic representations. However, none of these textbooks chooses only one such a presentation. That's the reason why many teachers share concerns regarding the multitude of representations – even if they are part-whole presentations – because it's very confusing for the children, espe-

cially for those with learning disabilities and those at risk for math failure. For instance, solving one problem they have to use Venn-diagrams, for another problem bars etc. Again and again pupils have to reorientate themselves. An exploring study can reveal the effectiveness of all these graphic representations.

Sample

We worked with a sample of 65 West-Flemish classrooms (and teachers), 1099 8-years-old pupils (712 from rural schools, 387 from urban schools) among which 557 boys and 542 girls. To collect data we recruit our students of the 1st year of our training centre in Torhout (KATHO – department RENO) as collaborators.

Concrete research questions

The main question is: "Is it possible that pupils take more profit more from one graphic representation than from other ones?"
We already noticed that the amount of pupils involved in our study, allows formulating also other interesting research questions:
1) Is there a difference in achievement of basic math skills (addition and subtraction up till 100) between 8-years-old boys and girls?
2) Can gender differences also explain differences in the performance of problem-solving skills?
3) Do pupils in rural schools better perform than pupils in urban schools concerning math skills (addition and subtraction up till 100) and problem-solving skills?
4) What is the influence of textbooks in developing the math and problem-solving skills of 8-year-old boys and girls?
5) Does the knowledge of the basic operations (addition and subtraction up till 100) influence the performance of problem-solving skills?

Research material

Questionnaire for the teacher

Each teacher had to fill up the next questionnaire: 1) Are you a teacher of a rural or urban school? 2) Do you prefer separated or integrated problem-solving lessons, or a combination approach? Why? 3) Why is problem-solving so important? Give the two most important reasons. 4) Do you use a general solution strategy? (E.g. the Bears of Meichenbaum) 5) Do you use specific graphic representation(s)? Which one do you use mostly? Arrows, number lines, bars, square representations etc.? 6) What's the name of the textbook used in your classroom?

We already comment upon the answers for questions 2 and 3. The answers for the other questions will be analyzed further on. Concerning question 5, teachers particularly use: arrows, representations grouping pictures or drawings in sets (cf. Venn-diagrams), square representations, number lines, bars and finally a combination of different representations. Some teachers never use a graphic representation.

Timed test on addition / subtraction

The TTR (Tempo Test Rekenen, designed by Teije de Vos, 1992) includes addition and subtraction sums up till 100. The test includes two columns: one column with addition sums, the other one with subtractions. Addition and subtraction sums progress in difficulty, up till 100. The pupils had to complete each column in one minute.

Problem-solving test

The pupils also had to solve three problems:
- A (indirect) change problem: Peter got five sweets. Ann gives him some more. Now he has twelve sweets. How many sweets did Ann give to Peter?
- A combination problem: Peter has five sweets. Ann also has some sweets. Together they have fourteen sweets. How many sweets does Ann have?
- A compare problem: Peter has thirteen sweets. He has five sweets more than Ann. How many sweets does Ann have?

Analysis of research data

Is there a 'best' graphic representation?

To answer that question, we compared the results of the problem-solving tests based on the most used representation in the classroom:

Table 1. Mean scores problem-solving tests based on used representations in classroom

Representation	Mean (/3)
Combination	2.02
Arrows	1.77
No representation	1.92
Bars	2.27
Pictures/drawings grouped in sets	2.39
Square representation	1.89
Manipulatives	2.28

Statistical analysis reveals that pupils using arrows when problem-solving, perform significantly worse than:
- pupils using a combination of representations (LSD: .25*)
- pupils using manipulatives (LSD: .51*)
- pupils using bars (LSD: .50*)
- pupils using pictures or drawings grouped in sets (Turkey LSD: .62*; LSD: .62*).

Pupils using no graphic representation at all, perform significantly worse than pupils using pictures or drawings grouped in sets (LS.: .47*). Comparison of other representations doesn't reveal significant differences. We can conclude that the use of arrows is not a good idea when solving problems. Besides we can state that using no graphic presentations is also not desirable.

Concerning the use of a combination of graphic representations (cf. the principle of conceptual variability, i.e. the belief that pupils develop a better conceptual understanding when using several graphic representations: cf. Feys, 1998, 115-116) we notice no significant differences. Despite that fact the absolute scores suggest that this

approach reveals worse results than all other approaches using only one representation.

Is there a gender difference in achievement of basic math skills?

At first sight the results of our study confirm the cliché that boys perform better than girls. For instance, the National Curriculum Tests in the Netherlands (the so-called CITO-end-test) also reveals gender differences, year in year out (Kool a.o., 2000, 9-11). Our study as well found quantitative differences in the results of the timed test on addition and subtraction. The average score for girls (N=542) is somewhat worse than the score for boys: 7.391 as opposed to 7.471. However, that difference is statistical not significant. But: the test only evaluated the performance of addition and subtraction sums up till 100. So, to compare with other research conclusions, we found a Dutch study constituting pupils with the same age of 8 years. The data of the so-called Periodieke Peiling van het Onderwijsniveau (PPON) in 2003 (Kraemer a.o., 2005, 155) indicate significant sex differences in the study of addition and subtraction sums up till 100, in favour of the boys. The question why these sex differences in the Netherlands are significant but not in Flanders, is not easy to be answered. Besides, in 2003 the well-known PISA-study revealed significant gender differences in the performance of 15-year-old Flemish pupils in mathematical literacy (space and shape, change and relationships, quantity,...), although that was not the case for one area in mathematics, namely 'Quantity' (De Meyer a.o., 2004). Precisely that area focuses numbers and operations, i.e. addition, subtraction etc. In contrast with the research findings in the Netherlands, already in 2003 there's research evidence that there are no gender differences in the performance of Flemish pupils at age 15 concerning basic operations (addition and subtraction). Now we found also no gender differences at age 8. However, we might find gender differences in the study of problem-solving skills?

Can gender differences also explain differences in problem-solving skills?

The so-called Periodieke Peiling van het Onderwijsniveau (PPON) in 2003 (Kraemer a.o., 2005, 155) also found gender differences in problem-solving performance: boys did better than girls in problem-solving. Our study seems to confirm that finding: boys show a mean score of 2.03 and girls a score of 1.96. However that difference is not significant.

Do pupils in rural schools better perform than pupils in urban schools?

Both data results of the timed test and results of the problem-solving test indicate no significant difference between pupils of rural schools and those of urban schools. Looking at the absolute scores, we notice that pupils of urban school perform better regarding to the timed addition and subtraction test (mean score of 28.83 as opposed to 27.90 in rural schools) but not to the problem-solving test. On the contrary pupils of rural schools perform better: 2.02 opposed to 1.95.

What is the influence of textbooks in developing the addition and subtraction skills?

Analysis of the research data made it possible to compare the textbooks regarding to the results for the timed addition and subtraction test. We can conclude that pupils

profit more from traditional textbooks. The differences between traditional textbooks and so-called 'realistic' textbooks are significant!

Realistic textbooks stress more conceptual understanding. Pupils only learn to make math operations by real-life contexts. On the contrary traditional textbooks also involve the memorisation of some math facts (addition and subtraction sums, multiplication and division tables...) as well. They also pay attention to "straight-ahead" (drill) exercises, and focus very strongly on structure.

What's the influence of textbooks in developing problem-solving skills?

Regarding to problem-solving skills we didn't find significant differences based on textbooks. It doesn't matter what kind of textbooks (traditional or realistic) the teacher uses. But that conclusion only concerns problem-solving skills and not the performance of addition and subtraction skills (see above!). When looking at the absolute scores we notice that:
- the textbooks correlated with the worse results, don't use any graphic representation to solve problems;
- these textbooks also provide for very few word problems;
- the textbooks correlated with the best results, pay very much attention to solving 'compare' problems.

But once again: these differences are not significant.

Does the knowledge of basic operations influence problem-solving?

It seems evident that unless the knowledge of mathematical facts (addition, subtraction, division and multiplication) is automatic, children will have difficulty with learning more advanced math skills and with solving word math. This is surely true for children at risk for math failure but also for pupils without learning disabilities. The data results of our study confirm this evidence. The Pearson Correlation Coefficient between the results of the timed addition and subtraction test and the results of the problem-solving test is very significant (level of significance = .01). For addition sums and problem-solving the coefficient is .155*", and for subtraction sums and problem-solving the coefficient is .194**.

Conclusions

1099 pupils at age 8 of 65 different (rural and urban) schools all over West Flanders participated at our study. Most of the teachers prefer a combination of separated and integrated problem-solving lessons. According to them separated lessons are still important because they allow to focus more on the different types of word problems and the strategies to solve them. That focus is especially essential for children with learning problems. Only a minority of the teachers opt for a totally integrated problem-solving approach or for totally separated lessons.

Regarding to our main research question we can state that the use of arrows is not effective at all. Pupils profit more from part-whole graphic representations, such as bars, or apply the part-whole scheme when grouping manipulatives, drawings or pictures in sets.

The use of no graphic representation at all is a bad idea. It seems that graphic representations facilitate problem translation and solution. Regarding to the use of different representations at the same time (cf. the principle of perceptual variability)

we didn't found significant differences, although absolute scores suggest that this approach isn't so effective.

Besides we noticed no significant difference between boys and girls referring to the results for the timed addition and subtraction test and also for the problem-solving test. We arrived at the same conclusions regarding the performance of pupils of rural and urban schools.

Noteworthy are the significant differences between textbooks referring to the performance of the basic operations (addition and subtraction up till 100). Pupils using traditional textbooks perform better than pupils using realistic textbooks.

However, concerning the problem-solving test there are no significant differences between the textbooks. Nevertheless, reviewing the absolute scores we may suggest that pupils better perform if the textbook pay attention to the use of a graphic representation in problem-solving and if the textbook provides enough word problems — and especially 'compare' problems!

Finally the results of our study underline a very strong correlation between the mastery of the basic operations (addition and subtraction sums up till 100) and problem-solving proficiency. Of course an automatic knowledge of these operations reduce a pupil's cognitive processing load and make available mental resources for engaging in problem analysis and solution. Generally children with learning problems have severe limitations in work (short term) memory.

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VII Urban Education

19. Investigations into the implicit curriculum through equity audits

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Abstract

This paper explores the use of community entry experiences, data collection, and equity audits as assignments in a social studies methods course with early childhood/elementary pre-service teachers. As students develop as scholars, researchers, and educators, they explore structural inequalities in schools and communities as well as their own biases and prejudices. This paper proposes to investigate the experiences of students and their professor through autobiographical reflection and artifacts of student work from the course.

Introduction

Texas Christian University's (TCU) early childhood/elementary program prepares teachers through field-based coursework with significant experiences in urban schools, and a focus on the dispositions necessary for teaching students of diverse cultural, linguistic, and ability backgrounds, as well as varied economic and geographic social locations. One goal for graduates is that they will contribute to *a humane and just society in which all individuals can develop their full potential.*

Unlike the population of public school students, the teacher candidates are primarily middle/upper middle class, Caucasian, and female (see Table 1 for demographics). The scope and sequence of courses were carefully designed to encourage nascent educators to:

1) question structural inequalities,
2) build mutually respectful relationships within schools and communities,
3) recognize high potential within each child,
4) develop exceptional pedagogical practices that are responsive to children, and
5) continue their professional and ethical growth as educators.

The faculty value these five dispositions as necessary for 21st Century educators.

Table 1. Typical cohort demographics

Gender	99.3% Female	0.7% Male
Race	92% Caucasian Students	8% Students of Color
Age	96% <25 Years	4% >25 Years
Tuition	52% Pay Full Tuition US$ 26,900 annually	13% Tuition Benefit 35% Scholarship

Facilitating pre-service teachers' understanding of the inequities within school learning environments and among communities has been a challenge. I spent years trying to convey the ways gender, race/ethnicity, social class, language, ability, and the like differentiate student experiences within and outside schools. In this paper, I describe my experience over the past two years using equity audits to facilitate pre-service teacher understanding of structural inequalities and the implicit curriculum during their junior year in the social studies methods course.

Social studies and explicit and implicit curricula

On the first day of class, I reacquainted students with the explicit (official) curriculum of social studies—history, geography, civics, economics, and culture. I also introduce them to the implicit curriculum, which I explain in the course syllabus:

> The implicit curriculum is theoretical, real, and practical, and is based on the assumption that the official curriculum is not the only thing taught. Like the explicit curriculum, the implicit curriculum also assumes that the ways students are taught are important. The implicit curriculum, hidden curriculum, and null curriculum, however, goes further and explores what is taught and not taught through the social, physical, and emotional backdrop of the learning environment and broader community. Because the implicit curriculum is not obvious and yet consistent in many ways, it is powerful and many (if not most) students learn its lessons too well.

Such curricula are potentially dangerous because the educator(s), content, and method(s) of instruction are hidden and diffused in quotidian repetition and are disassociated from their impact (Huckaby, in press) in what Dewey (1938) calls collateral learning. Such pedagogies, public and institutionalized, in and of themselves are neither good nor bad, but as an apparatus of power (Foucault, 1980; 2000) they hold the potential to harm or benefit and their lessons form "enduring attitudes" (Dewey, 1938, p. 48). Too frequently we conceptually confine pedagogy to the intentional practices of teachers within classroom boundaries; however, whether acknowledged or not, pedagogy breaks through imposed borders to take on numerous forms. The study of planned pedagogy within schools has rendered most ill equipped to recognize and critically understand the workings of implicit curricula (Huckaby, in press).

During the semester, we devote half of our time to explicit social studies and the other half to the implicit curricula formed by gender, race/ethnicity, social class, language, ability, and the like. To explore implicit curricula, I guide students in (1) the collection of data in community, online, school, and classroom contexts, (2) the critical analysis of the data, and (3) the development of more nuanced understandings of inequity. I have expanded upon the notion of equity audits (Scheurick and Skrla, 2003) to work with students as they use data the collected to identify systematic patterns inequities within four school communities.

For the semester, each student is assigned a mentoring teacher in one of four schools. The students spend about 40 hours with the classrooms during the semester as they work with the class and assist the teacher in planning, teaching, and assessment. The pre-service teachers also complete assignments for five (5) courses focused on teaching mathematics, literacy, writing, social studies, and English language learners or special education students. Typically, 50-60 students participate in these courses as a cohort and are divided into two class sections. While the schools vary a bit from year to year, during the past two years they have included five (5) public schools and one (1) private school. See table 2 for descriptors of student populations in each school (Great Schools, 2009).

Sixty (60) students were placed in schools A, C, D, and F in 2008 and 53 in schools B, C, E, and F in 2009. Once students know their school placements, the group of students assigned the same school begins collecting data on their school community. I have designed the equity audit project so that students move from knowledge that is more familiar to their social context to the context of the school community. They begin with online information searches and opinion surveys conducted within their social networks. They move to community visits and a meeting

with parents and school personnel. Finally, they enter the school and join an elementary class.

Table 2. Descriptors of student populations by school

| Descriptors of Student Populations | School | | | | | |
	A	B	C	D	E	F*
Economically Disadvantaged	57%	62%	89%	5%	71%	--
Limited English Proficiency	24%	22%	53%	2%	45%	--
Texas Assessment of Knowledge and Skills Grade 4 Math	78%	88%	63%	99%	88%	--
Texas Assessment of Knowledge and Skills Grade 4 Reading	79%	81%	70%	98%	81%	--
Hispanic	54%	38%	81%	5%	77%	--
White	37%	35%	6%	89%	18%	--
Black	23%	9%	9%	4%	4%	--
Asian/Pacific Islander	3%	3%	3%	2%	<1%	--
Native American	<1%	<1%	<1%	0%	0%	--

*School F is a private school and data is not available via Great Schools. The student population is predominately White and the school charges annual tuition, although some students receive scholarships or other financial assistance.

Community entry

The first series of assignments are designed to facilitate the entry of pre-service teachers into their school communities, and culminates in a community entry portfolio. I have assigned the community entry portfolio each year for the past five (5) years, and students have used the portfolios as data in their equity audits the past two (2) years. At the time of the assignment, the young educators believe they are preparing to join a school community, and the portfolio is simply a collection of their data and reflections on the school communities.

Community data collection

Working in groups of six (6), the young teachers conduct electronic archival research by searching and recording key information from school, realtor, school comparison, and community websites. Their archival data collection is followed by public opinion surveys through which each student asked two (2) people in her own social network what they know and think about the school community. They compile the raw, unanalyzed data in their group portfolio. During class, I offer simple instruction on data collection and the work of social scientists as the class prepares to visit the community and take on the work of ethnographers.

After locating the community on the map, students visit the school community. I encourage carpooling, but insist they walk around the community and interact with places and people in pairs or as individuals if they feel comfortable. The social interactions of a larger group, I suggest, would compete and interfere with their attention to the community. While I expect them to make notes of their observations, I do not want them walking around a community and jotting notes as they watch people. Instead, I encourage them to be present, to interact, and to make mental notes until they find a quiet, semi-private place to make brief written notes, which they can expand later for the portfolio. I instruct students to interact respectfully and professionally within the community. For example, the instructions for the assignment state:

> If you have opportunities to talk with people in the community, it is absolutely fine to tell them you are a studying to be a teacher and that you will be in the local school...this semester for your classes. Do make sure you present yourself in a professional manner and show community members that you are excited to teach students from their community.

I encourage them to pay close attention to details, to make descriptive fieldnotes, and to describe what they observe. I suggest that they may include what they feel in their fieldnotes provided they describe what observations or interactions lead to the feeling. Each student on the team writes two (2) fieldnote entries and as a team their fieldnotes explore

1) businesses (e.g. grocery store, bank, gas station, newsstand, laundromat, restaurant);
2) community services (e.g. medical clinic, library, community center, post office);
3) the environment (e.g. parks, safe and dangerous places, bodies of water, landscape, uses of land);
4) forms and messages of media (e.g. community newspapers, city newspapers, billboards, signs, bumper stickers, advertisements, posters, t-shirts, announcement boards); and
5) a community event (e.g. garage sale, carnival, worship service, library book reading, community fair, school play, school board meeting).

The team also creates a map from their experiences moving around the community that includes each of the places described in the fieldnotes. They are not allowed to use printed or electronic maps.

School panel and visit

After the teams have visited the communities, they identify the questions they want to ask about the school community, and each person writes a reflection on her community experience and expectations for the school. I work with students to develop respectfully worded questions that address their honest questions and open possibilities for additional information that may challenge their biases. For example, when students want to ask the following question about a newly built school in a working-class community—How did you get such a nice school in this community?—I encourage the exploration of assumptions and considerations of how such a question may be heard and felt. Students revise such potentially disrespectful questions into something more like, "What a lovely school you have. What is the history of this new building?"

While the pre-service teachers were visiting the communities, I worked with each school to develop a panel of school and community members to meet with the young educators. The panel members vary by school and have included school administrators, counselors, teachers, and parent liaisons; as well as parents, grandparents, and community volunteers. I encourage the panel to introduce the students to the school and to share their hopes and expectations for the students attending the school, the educators in the school, and the TCU students placed in the school for the semester. Most panels include about four or five people, but the number can also be smaller or larger. One panel this last year, for instance, included only the school counselor because other members of the school were called away at the last minute to the district office.

After the panel, students tour the school campus and meet their mentoring teachers and their classes. In most cases, these introductions are brief as the student steps in the door to exchange names with the teacher and say hello to the children. Last semester, I was quite pleased that one school allowed each of the pre-service

teachers to spend 20-50 minutes with their teachers and classes after the tour. After the school panel, the students write reflections about the day's events and revise their expectations. Within 1-3 days after this initial school visit, the pre-service educators begin their weekly 4-hour placement in the school. They also complete and submit their Community Entry Portfolios, which I grade and format for use later in the semester as data for the equity audits.

Sharing insights on the school communities

In class the following week, I guide students through a structured sharing exercise about each of the school communities. To encourage deeper engagement and responsibility for each student, I use expert teams (also called jigsaw groups) to structure the discussion. First, students group themselves by school teams and determine the five (5) most important things about their school. I provide large paper, markers, table, and wall space for them to create a display. They create their visual aids, display artifacts from their portfolios, and determine what they want to say about each of the five items. Once the displays and talking points are completed, the teams shuffle so that at least one member of each school team joins a re-mixed group. These groups rotate through the displays and discuss each school. At each station, the student(s) of that school describes the school community and addresses any questions their classmates have. I listen to what they have to say, occasionally point out interesting comparisons I notice, pose questions to the teams, and address their questions. Students show great interest in the school similarities and differences, and have expressed that they feel well prepared and comfortable in the schools after the community entry project.

School investigations

Once the students have entered their elementary classrooms for the semester, they begin collecting data on the implicit curriculum on campus. Using chapter 8: investigating your environment of *Open minds to equality: A sourcebook of learning activities to affirm diversity and promote equity* (Schniedewind & Davidson, 2006), students translate lessons designed for fourth graders into their own investigations of the school context. Again, they work in school teams and share the work. Their investigations explore:

1) Who is honored by school holidays;
2) Images, posters, and other objects that occupy the school hallways;
3) Demographics of personnel on the school campus;
4) Content and images of social studies, mathematics, language arts, and literature texts and textbooks; and
5) Observations of interactions among class members (students and teacher)

I ask them to pay close attention to race, class, sex, religion, ability, language, sexual orientation, age, and individualism whenever possible, and encourage them to look for explicit and more subtle examples. For example, a student might note that a storybook without pictures mentioned the race of characters only when the character was not Caucasian (White). Because of this observation, one group revisited their favorite grade school books to see if the pattern held; in many cases it did.

Each team compiled their data into graphs, tables, and descriptive fieldnotes, and submitted them for a grade. I combined this data with the community entry portfolios for each school and created one volume with a linked table of contents for each

school and data source in preparation for analysis. The pre-service educators devoted about a month each to the community entry portfolio, the school investigations, and data analysis. While they conduct the community entry assignment and school investigations outside of class, we explored ways to teach history, geography, civics, economics, and culture in class. When they conduct the data analysis, we spend all of the class time analyzing until the final report was complete.

Equity audit analyses

On the day we begin the equity audits, the students vote on the human experiences they most wanted to explore. In the two years I have conducted this assignment, social class, race, gender, language, and ability have earned enough votes for further study. Sexual orientation and religion received votes but not enough, even with advocacy from a few students, to form a group. Individualism and age have yet to earn anything more than token votes. Students are able to select which human dimension they will explore through the data they collected provided at least one member of each school team joins each new research group. In other words, the group that explores race (and each other selected group) is comprised of a member from each of the four schools. I give each team one copy of the compiled data that includes two community entry portfolios and two sets of school investigations for each of four schools since cohort of 50-60 students is divided into two class sections.

As students begin to work, their first task is to divide the data from all of the schools and read the it as a team looking for all references to race, gender, class, language, or ability. I encourage them to highlight, mark, and make notations on anything related to their group's focus of study. I share and review the following via power point projection:

Your role
- Start with your DATA! Stay with your DATA!
- Review, discuss DATA with team, read and re-read carefully
- Find everything you can in your DATA related or *somewhat* related to your topic
- Have more than one person read through and look at each section of DATA closely
- Exchange DATA
- Begin categorizing
- Begin looking for patterns
- Begin talking about what the categories or patterns may mean
- Use any of the supplies that may be helpful
- Plan your own break

Dr. Huckaby's role
- Encourage and nudge you and your team
- Help you think through what you may be seeing
- Offer suggestions on what you could do next
- Point out and help you and your team see connections between what you are doing to the work of researchers IN RESPONSE TO YOUR WORK
- Help you identify and refine a methodology for your study
- Occasionally direct comments and insights to full class
- Tutor, Coach, Consultant

At first, the room is quiet, the students look at me in disbelief and tentatively review their data. As I see them underlining and making notes, I encourage them verbally and point out what one student is doing with enough volume so other students can hear.

Eventually, the review of the data develops momentum and within about an hour or so students begin talking to each other about what they notice that is interesting.

I reverse the typical order of research practices for this assignment. I have designed the study with clear data collection methods and avenues to multiple research questions, methodologies, and theoretical orientations. The students, however, begin with data collection, and proceed to study and analyze the data before they know their methodology. I, however, watch and listen to them very closely. I notice the types of markings they make on their data, the ways they talk about the data, and the patterns and themes they identify. I ask them what is most interesting to them and how they came to find the identified phenomena. When I have sufficient information, I suggest at least two possible research methodologies to each team. I share with them a description of the methods from a research dictionary, explain the method in lay terms, and address their questions. I ask the team to let me know if and how the methods are consistent or inconsistent with what they are doing and want to do. When necessary, I work with the team to identify a more appropriate method. Most of the time I know enough about the method to appropriately guide the students. On occasion, a group will choose a method that I do not know well, and I work with them to find more information to guide their work. Students have used content and thematic analyses, critical social science, critical race theory, discourse analysis, and cultural and human geography.

In 2008, each team wrote a research paper and presented their findings in a research presentation to the class and invited guests. In 2009, each team prepared a research poster and presented the poster at the universities research festival.

Understanding the implicit curriculum through equity audits

I use Style's (1988) metaphor of the curriculum as window and mirror during the course. Style argues that the curriculum should show each student her/his own culture in positive ways and serve as a window to other cultures. For a teacher to use such a metaphor appropriately, she must know the difference between windows and mirrors. In other words, teachers need to know when a particular perspective is merely the reflection of a window in one's own mirror, not the window itself. Before I used the equity audits, I found students biases and preconceived notions of communities different from their own steadfast and not always respectful; they saw windows to other people's lives, but mostly in the reflections of their own biases and prejudices.

I find the equity audits particularly useful not only because students conduct their own research, but also because they begin to notice the patterns of systemic inequity within their own observations and words describing these observations. Through the work of analyzing data, determining findings, and reporting findings, I talk with students about the inequities they notice; the analytical reflection of biases seems less sharply personal from my observations. I discussed the following observations with students:

- They used *nice* to describe middle-class and predominately White neighborhoods and *run-down, sketchy, unsafe* to describe working-class and predominately Hispanic or African-American neighborhoods.
- They described a school as diverse when the largest population was a different race than their own even if the school did not have much racial diversity. Schools with similar demographic ratios with the largest population of their same race were considered non-diverse.
- Their assumptions about low parent involvement in working-class schools and high parent involvement in middle-class and private schools where challenged by data on the number of parents, siblings, and grandparents that attended family events on the campuses.

- Children with physical and learning differences were rarely represented in the texts and textbooks used in their classes.
- Social studies textbooks illustrated in images and text more racial and cultural stereotypes than other types of books.

Our discussions of their observations and findings, by working through the data analyses, I believe allowed students to explore potential collective biases more systematically and less personally than other methods I have tried. The sequence of assignments that lead to the equity audits is time-intensive for students and myself, but the learning, I firmly believe, is worth the effort in facilitating pre-service teachers' professional and ethical growth as they begin to question structural inequalities and develop pedagogies that minimize inequalities and strive for equity.

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20. Urban Current Events:
Creating a space for critical, multicultural thinking

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Faculty committed to preparing prospective teachers for success in multicultural classrooms must help to bridge the growing cultural mismatch (Banks, 1995) between teachers and the students they teach. Indeed, America's public schools are experiencing a racial and cultural gap between teachers and students that is large and growing. The percentage of minority students in American public schools has grown from 33% in 1993 to 41.7% in 2003. At the same time, Whites represent 90% of the teachers, a figure that is projected to remain high and possibly increase (National Center for Educational Statistics, 2006).

Simultaneously, the political and institutional focus on accountability and reductionist views of learning are impacting education as whole, forcing educators to work in an environment that privileges quantitative measures of success; manipulates curriculum into narrow content driven strands of discrete skills; and decreases opportunities for experiential, serendipitous learning, time for reflection, personal interrogation of situatedness, and critical thinking about teaching, learning, and multiculturalism.

When external forces are antagonistic to creating and maintaining a multicultural, socially just world view, how do teacher educators create classroom spaces for prospective teachers that nurture and mediate the critical thinking that should underscore such perspectives? What classroom practices can be infused into a highly standardized curriculum that will facilitate an understanding of one's own cultural identity, celebrate difference, and promote critical thinking and dedication to equitable learning opportunities?

The practitioner action research shared in this paper explores the impact of a specific set of undergraduate classroom pedagogical strategies and the space they created for modeling and nurturing multicultural, critical thinking and socially just attitudes. The findings of this classroom research conducted in a U. S. public university teacher education program and its relevance to teacher educators' pedagogical practice across the globe can initiate creative and meaningful dialogue among the members of the Urban Education TIG.

The research

The practitioner action research was conducted in an undergraduate class called Urban Education and Classroom Diversity (ELED 356) I have taught for five semesters. The class is designed to help prepare beginning educators to be culturally responsive teachers with their increasing diverse students and to fulfill the moral mandate to teach in public schools, with special emphasis on choosing urban classrooms. The research investigates the development of a pedagogical strategy called "Urban Current Events" (UCE) which became a vehicle to develop critical thinking, and draws upon the work of Lev Vygotsky; his thoughts on the zone of proximal development and mediated learning, and Marilyn Cochran-Smith's (2004) work which explores and expands pedagogies of multiculturalism and critical thinking.

Research findings have been gleaned from purposefully collected qualitative data which includes assignments, student presentations, and reflections; student comments about Urban Current Events in final integrative papers, anonymous course

evaluations; interviews with two purposefully selected student participants; and researcher/instructor field notes and reflections. Analysis was done in constant comparative fashion (Glaser & Strauss, 1967), revealing common themes within each semesters' data that were then combined to construct a collective chronological development of both the teaching strategy and the influences on prospective teachers' learning.

The research setting

The research setting is a mid-sized (approximately 6,000 students), public university in the northeastern United States. Despite the university's ongoing efforts to recruit students who are culturally diverse, the population of the Early Childhood and Elementary Education (EC/ELED) teacher education students mirrors the U.S. national statistics on prospective teachers--white, middle class females from suburban or rural areas. Adding to these demographics, a large percentage of the students have had few experiences with racially and ethnically diverse cultures or urban environments and, upon graduation, desire to teach in a school similar to the one they attended. One may observe, through oral responses and written reflections, evidence of ethnocentric stages of intercultural sensitivity (Bennett, 1986) and little awareness of or critical approach to the racial and socioeconomic inequities that are pervasive in the United States' public schools.

ELED 356 is an elective and the only course in the EC/ELED program that focuses solely on issues of diversity, multiculturalism and urban education. Students taking the course reflect the population of the department. Of the 89 students who have taken the class since 2004, only five were males. Racial/ethnic demographics as self-reported are: two African American; seven Hispanic, one of Asian decent, and one of mixed racial background, leaving the large majority of white female prospective teachers.

The ambitious goals for the one semester course include examining and developing a clearer sense of one's own racial, ethnic and cultural identities and beliefs toward other racial, ethnic and cultural groups; learning about culturally constructed consciousness (Vygotsky, 1995) as it relates to language, learning, and classroom diversity; developing skill in culturally responsive teaching through experiencing teaching urban students in an urban setting; and becoming knowledgeable about educational, social, political, and economic systems and their relationships to and among issues of social justice and equity in an urban context.

The class activities which facilitate the course goals include strategies to heighten and expand students' sense of their own cultural identities and shared culture through various group memberships; videos, articles, and books describing and discussing urban education and dynamics of multiculturalism and difference; a two-part field teaching component in an urban school; and the focus of the action research presented here--the development of assignments in which students read, present, and discuss articles focusing on which focus on urban current events.

Urban Currents Events as mediational tool

In preparing educators to be successful with all the students in their classrooms, especially those "who don't look like [they do]" (Davis, 2006), an understanding of and agency toward issues of social justice and equity within a multicultural orientation is a critical thread that should run through all teacher education courses. Vygotsky's work

(1978, 1986, & 1997), grounded in his cultural historical theory, provides a cogent framework through which to explore pedagogical practices that can help reach the goals mentioned above. Vygotsky believed that all learning is social in nature. Therefore, the "funds of knowledge" (González, Moll, & Amanti, 2005, p. ix) that students bring to the classroom are constructed by their personal history and knowledge gained from their experiences. Similarly, casting the classroom itself as a purposefully designed culture that promotes cognitive and affective development places the instructor as a "more capable peer" (Vygotsky, 1978, p. 85) responsible for mediating, or "coming between" the learner and the learning environment. As a mediator, one "selects, changes, amplifies, and interprets objects and processes to the [learner]" (Kozulin, 1998, p. 60).

Vygotsky's (1986) ideas of mediation and learning have an orientation toward the future--"the only good kind of instruction is that which marches ahead of development and leads it; it must be aimed not so much at the ripe as at the ripening [mental] functions" (p. 188). Mediation assumes an active role for both teacher and learner in purposefully planned activities as well as unplanned events. In the case of teacher education students' exploration of issues of multicultural difference, both planned and serendipitous happenings may have powerful positive or, unfortunately, mis-educative results. Acting as a mediator in classroom spaces where verbal or written interactions can become difficult dialogues (Knefelkamp, L., 2005) when potentially volatile subjects such as racism, white dominance, and issues of immigration are addressed requires a knowledgeable teacher(s) to react in ways that will minimize negative and maximize positive outcomes.

Successful mediation of sensitive topics like long-held and often inaccurate beliefs about people who are "different", unexamined stereotypes, and assumptions requires thoughtful, actions in recognition of Vygotsky's concept of the zone of proximal development (zpd), the dynamic process space in which mediation must occur. The zpd, or realm of potential learning of every learner at a given time and place, can be bridged and expanded by a knowledgeable mediator (Vygotsky, 1986). Observing and respecting the learners funds of knowledge and spaces of potential in order to expand them through purposeful dialogue, activities, and experiences is key to moving learners forward in their thinking, understanding, and action.

Kozulin (2004) reports research that found a "low level of spontaneous mediation among teachers. The teachers studied either avoided the mediational approach altogether, using instead directive teaching strategies, or were unsuccessful in the mediational attempts" (p. 20). This finding should be remembered when considering approaches to teach prospective teachers to critically consider information surrounding issues of social justice and difference. It may also reflect a possibly unintended outcome of the current rise of scripted (either figuratively or literally) and narrowed curriculum.

The ethical imperative to explore, address, and change the inequities in American education which are intertwined with race, class, and gender must also be mediated in university teacher education classes preparing culturally responsive teachers. Cochran-Smith refers to "teaching against the grain"-- as way to "call into question the implications of standard school policy and practice" (2004, p. 26), and states that one must first provide "analytical skills needed to critique standard procedures" (p. 27). She also proposes "working the dialectic" (p. 2); a distinctly nonlinear process . . . that is more like improvising a dance than climbing a set of stairs." (p. 3). Mediatonal strategies such as creating learning communities, adopting an inquiry stance, and generating local knowledge may promote a choreography of culturally responsive

teaching and critical thinking (Cochran-Smith, 2004), and Urban Current Events became a continuously designed and re-redesigned purposeful mediation focused on such goals.

The evolution of Urban Current Events

Urban Current Events began informally. Urban education is a complex and complicated concept, and I grappled with the difficulty of unpacking the multifaceted notion of what urban, urban learners, urban families, and urban schooling is and what it might mean to prospective teachers, most of whom had never lived in, or may have never even visited, an urban area. An oversimplified concept can become mis-educative if it results in reinforcing deeply held stereotypes and attitudes about minorities, violence, and under achievement rather than expanding understandings about urban schools and urban children. Initially, to begin to construct a concept of "urban," prospective teachers were required to find various definitions related to urban schooling and explore urban district web sites, along with reading and discussing *Savage Inequalities* (Kozol, 1991, later replaced by *The Shame of the Nation*, 2007). While informative about the state of urban education, the books led teacher education students who are not familiar with the dynamic complexity of urban areas to exoticize urban schools, people, and environments. This often reinforced stereotypes, increased previously held fears, and de-motivated interest about teaching in or even visiting an urban school.

To move beyond the simplistic web based reports shared by teacher education students and Kozol's factual but frequently overwhelming accounts of the state of urban students, I decided to try the idea of Urban Current Events. I asked each student to locate an article that addressed an event or issue in an urban school. I gave no other guidelines and set aside 10 to 15 minutes during each class for a student to share the article and facilitate discussion. Topics ranged from achievement gaps plaguing urban schools, truancy, innovative programs and innovative administrators, and urban population changes and trends to high school students protesting the banning of cell phones and the locking of school bathrooms due to vandalism. Class interactions often necessitated my prodding and questioning the student presenter and the audience. I was disappointed with depth of the discussions, but they revealed many students' misinformation, misconceptions, gaps in background knowledge, and inability to take a critical stance on the information presented--i.e., prospective teachers' individual and collective zones of proximal development in the area of critical thinking. I rarely heard any inquiries or comments of a critical nature, such as, "who wrote the article, and what was their position on the issue?", "what was not reported?", or "what might be another viewpoint to what the article stated?"

However, the assignment created a space for the sharing of experiences, connections to prior learning, questions, fears, and opportunities for the prospective teachers to converse about issues. While I wanted the student presenter to be in charge, the questions posed modeled critical inquiry and thinking. I was often frustrated that I didn't seem able to "get across" the understandings I wished to develop--the complexities of difference and multiculturalism, as well as issues of equity in curriculum, student placement, and educational access. Students did react positively to the classroom discussions--during the first two semesters of the informal UCE, 23 of 30 students mentioned the articles and discussions, allowing them to "find out about issues they wouldn't have known about otherwise," "have whole class discussions", and "hear others' opinions" in their anonymous course evaluations.

Reflection on the dynamics and results of the UCE discussions illuminated the need for more a purposeful mediation to develop critical thinking and the potential of a dialectic, "distinctly nonlinear" (Cochran-Smith, 2004, p. 3), discussion space which I believed could be created by the current events interactions. Agreeing with Vygotsky's belief that "learning leads development" I decided to look more closely at the opportunities existing the UCE classroom space.

Purposefully mediating critical thinking

Purposeful mediation began by overtly working to create a safe and supportive classroom environment; an "inquiry community" (Cochran-Smith, 2004, p. 12), in which to directly teach about and practice critical thinking. The prospective teachers and I now converse, during the first class of the semester, about the dynamics of a learning community that creates a space for sharing, dialogue, and debate. Following the discussion, all are formally invited be part of such a community in our classroom by signing a pledge to "listen and speak to understand" (adapted from Knefelkamp, 2005). The pledge includes the group goal of learning in multiple ways (including from each other), ground rules for discussions and dialogue, and the complexities and sensitivities related to the topics we will be personalizing and exploring together (urban schooling, cultural identity, race, ethnicity, equity, and cultural responsiveness). The pledge ends with "remember that acknowledging understanding does NOT imply agreement" Knefelkamp, class notes, 2005); thus requesting open and respectful debate.

Modeling and practicing critical thinking

After learning that critical thinking includes:
- the ability to penetrate to the core of an issue, idea, or problem and separate important information from the peripheral;
- being open minded, seeing things from various points of view, respecting different opinions and a willingness to explore one's own theories and feelings;
- thinking rationally and having a "healthy skepticism" while paying attention to intuition;
- raising important questions and alternatives while seeking what is missing or excluded;
- considering intended and unintended consequences of ideas, issues, and practices; and
- a willingness to challenge and be challenged

The next step was to include lessons that explicitly teach, practice, and embed critical thinking and critique throughout the UCE assignments and activities. An adaptation of Knefflekamp's (2005) work on critical thinking provides, by using the acronym "D I E + K", a framework for this work. D I E + K delineates the process of approaching a text, event, or experience in a critical way by *Describing* it, *Interpreting* it, *Evaluating* it's impact on the ones' existing knowledge and beliefs, and finally identifying the *Knowledge* one draws upon as well as the additional *Knowledge* one needs expand meaning. Students often have a difficult time realizing the value of their own experiences when talking about things so "foreign" as urban education and cultural difference. Focusing on the knowledge one possesses provides personal experience with the idea of funds of knowledge (González, Moll, & Amani, 2005) and reminds prospec-

tive teachers that all learners bring something to the learning situation. Prospective teachers practice using DIE+K by analyzing articles from a purposefully selected newspaper, the *Philadelphia Public School Notebook* is published by a public school advocacy group that specifically focuses on the School District of Philadelphia, where the beginning educators will do their ELED 356 field teaching, and thereby helps to inform them about their future practice teaching site while providing materials with which students will practice critical thinking.

The initial modeling and focused assignments reveal students' individual thinking skills and maturity. They are directed to describe the paper by first "zooming out"--looking at the paper holistically. Students get an idea of the *gestalt* of the paper by noting the types of articles--("a majority of articles in this issues focus on curriculum changes"--student response, 2006), advertisements ("I noticed many of the advertisements were for childcare or activities for children, making me think that parents look at this paper"--student response 2006), and recognizing that many articles are printed in English and Spanish ("I think that there must be a large number of Spanish speaking students in Philadelphia"--student response, 2008). Inferences about the purpose of the paper are made, such as "to inform students, parents, families, and any interested person about successful programs, test scores, curriculum changes" (student response, 2006).

When directed to "zoom in" on a specific article, various details are noted when describing the article and inferences are made in their interpretation, using the D and I separately. Not all are able to separate or withhold judgment until the E (evaluation) stage of the critical thinking model. The guided practice with *Public School Notebook* is a concrete and content specific (focus on the school district in which students will be teaching) way to promote and assess students' skill at thinking critically. In addition, the range of skill and understanding is wide and very useful feedback to have early in the semester.

Independent practice with critical thinking

The more formalized and guided mediation to develop critical thinking skills leads to the final assignment--to present a current issue to and lead a discussion with the class. As with the previous activities, I continue to redesign and "tweak" the final assignment to further facilitate the goal of developing multicultural critical thinking. The presenter's questions, discussion, and mediation of the dialogue becomes key to achieving this goal. The assignment stipulates roles for both presenter and audience, and each class member must prepare by following the steps of the DIE+K. The presenter must ask at least three critical questions to the audience, and the audience, must fully engage in what will hopefully become a dialectic interaction within the classroom community. Presenters are expected to provide additional information (K) during the presentation and audience members are invited to do the same. Presenters' responsibilities also include a written report on the article utilizing the DIE+K framework in order to explicate the meaning of their chosen article and issue. The article chosen must pertain in some way to urban education, and be taken from one of two nationally recognized newspapers.[23] Following the discussion, the presenter also writes a reflection that includes an assessment of the questions and the ensuing verbal

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[23]*The New York Times* and *The Philadelphia Inquirer* and not only nationally recognized, but daily print editions are free to all students.

interaction, the level of peer engagement, and further inquiries arising from the discussion.

Research findings, discussion, and conclusions

The fall 2008 class (n=18) is the most recent to participate in Urban Current Events. Anonymous responses from this class revealed the following themes, corroborated with multiple data sources and echoed by previous classes, revealed that UCE:

Urban Current Events is very popular. All but one teacher education student, from 2004-2008, rated it favorably; several stated they "loved" it. Novelty may be a factor--many students from each semester noted that they "had never done current events for an education course before", and the whole class discussion format appears to be an activity students seldom get to experience. This may be due to the seminar sized ELED 356 class, which ranges from 9 to 18, or the effect of a highly skill-based teacher education program where content delivery is a primary goal. The prevalence of large classes in other education courses may also account for the lack of large group discussion and opportunity to develop critical thinking skills[24].

UCE was described as "interesting," "surprising" (in reference to the topics discussed), "motivating" (prompting a desire to find out more about the topics presented), and "eye-opening" (in reaction to others' comments and opinions). Prospective teachers stated that they "like researching something that was relevant to [their] life as opposed to reading a textbook". "Some [topics] were funny and some were sad, but all brought strong messages [to us] as future teachers." Participating in whole group discussions and "learning others' thoughts and opinions" was ranked an important aspect of the UCE activity. "I think every group did an excellent job asking open-ended questions. I even think that some of the presentations could have lasted longer."

My field notes record attentiveness on the part of the teacher education students to the presentations and discussions. The was a consistently high level of engagement in the classroom and I often had to stop the discussion in order to move on to other content in the weekly three hour class.

Knowledge about urban issues and schools was broadened by Urban Current Events presentations and discussions. Meeting the course goal of increased awareness of urban education was cited in final reflection papers:

> By learning something new and obviously important (by being in the news), I was motivated [and required] to do some of my own research regarding the events presented. Becoming an "expert" on my current event made me understand the administration of the [school district], and answered many of my questions surrounding the finances of urban education. There were so many controversial articles presented that had all of us critically thinking and debating on issues, making us see various sides of each issue. This process had us identifying, interpreting, and evaluating important issues regarding urban education and diversity in the school district.

In her reflection on "Bridgeport looks to India to fill teaching gaps" (New York Times, Sept. 21, 2008; retrieved Oct. 28, 2008), which reported an initiative to fill teacher shortages in an urban district, one prospective teacher commented:

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[24]Enrollment in ELED 356 was always lower than other classes, which usually is between 25 and 35. Such large classes obviously make it more difficult to create spaces for "nonlinear" discussions and dialectical spaces.

We had a discussion about discipline in [the new teacher's] class. Also, we spoke about how the students made fun of her [the new teacher recruited from India] accent and her shoes. We talked about how the students would have to relate to the teacher, in terms of a language barrier. The discussion of a language barrier was a big topic of discussion because I feel that almost every student in our class can relate to having a teacher with a language barrier. One college student [in the class] said that she even had to drop a class because she couldn't understand anything he was saying. Someone else disagreed, saying that in the preschool where she worked, children spoke different languages and that she must get used to how their accents. Another student though that students would benefit from having a teacher from another country because students could benefit from the different culture. Also, we talked about how we should teach foreign languages when children are younger, and how children might have an easier time decoding what the teacher is saying when they have an accent.

[Instructor/researcher reflection: the term "language barrier" by the presenters created a dialogue space where I was able to confront its use and guide the students toward an understanding of cultural construction of language and cognition as well as a respect for diversity]

She continued:

During our conversation I spoke the quote: 'In India the teacher is next to God'. This was actually a good conversation because we talked about respect and the lack of respect that a teacher in America gets both in and out of the classroom. This sparked up the conversation within the [ELED 356] classroom because we were able to talk about the discipline or the lack thereof in our classrooms. This conversation led to me reading the quote, "In India, most of the disciplining happens when children are younger . . . . It's easy to bend the stem of a plant when it is young. Once the stem gets strong, it is much harder.' We also talked about respect in the classroom.

[Instructor/researcher reflection: this provided an opportunity to discuss the status of teachers and educational systems in different parts of the world]

The reflection ended with:

Overall, I feel that this presentation went well. I feel that we had a lot of students voicing their opinions with a certain point in the discussion. When I asked the first question [How do you feel about this approach {recruiting} to the problem {filling a teacher shortage}?], I had to lead the discussion to get the ball rolling, but once it started it went very well. Students were willing to jump in and add their opinion."

While I continue to feel it necessary to push the teacher education students in their thinking by asking about possible "hidden agendas" and bias on the part of the author, overall, I have observed students' participation and commitment to thinking beyond the obvious. Too often, though, their thinking is restrained by lack of background knowledge on a subject. In these cases, my mediation includes filling in some facts to continue the dialogue.

The current events activities were successful at creating an opportunity to hear different viewpoints and voice one's own, discuss and think in depth about an issue, all of which reinforce the tenants of critical thinking. Prospective teachers shared that "sitting and listening to other students give feedback and point of view made [them] think in depth about the situation, and see it from another person's point of view", and that the activity "allowed [them] to question the 'value' and to think beyond the presented facts". Specific critical thinking skills defined at the beginning of the semester were alluded to in final reflections and evaluations:

"I learned to be open minded and to respect other peoples' opinions. I learned that being aware of what is going on in our society, especially in education is very important for teachers."

Experiencing the complexity and ambiguity of critical inquiry was evidenced in comments about being "Frustrat[ed] because you didn't always have the answers to questions so you were left hanging" fear of not being able to answer someone's question."

After the first few weeks of UCE, Prospective teachers appear to be very comfortable joining in the discussions. This may have to do with the commitment to a classroom community and also because of other course activities such as traveling together (a trip of 100 miles) to Philadelphia for our field teaching.

The development of critical thinking skills was enhanced by requiring students to be both presenter and audience member. Teacher education students shared that they learned through the roles of both presenter and audience member. "Being both a presenter and an audience member was great. It allowed me to read other articles that I probably would not have. From hearing about other peoples' current events, I was able to broaden my horizons even more."

> By being the presenter, not only were we learning about a cultural issue, however we were also responsible for the learning of our colleagues. Because of this, we all needed to spend time analyzing, interpreting, and thinking critically about the chosen article. As the audience, our role was to participate in the critical discussion. We did this often times for as long as we could, rebutting and debating statements. We heard an array of opinions, discussed problems, proposed solutions, all the while learning about a 'hot topic" in urban education.

Skill building and practice through the use of modeling, DIE+K, creation of open-ended and thoughtful questions, and choice of topic as required by the assignment was also cited as useful:

> Everyone has the chance to search for an article that appealed to her personally. I think this is fundamental. Writing about the article after presenting it was also a good idea [and] especially using the zooming out then zooming in technique because I helped me to discern what knowledge I bring with me concerning this issue and what else I don't know.

Field notes from the past four years have chronicled the increase of presenters' open ended questions as each semester has progressed, as the audience hears more presentations, engages in more discussions, and hears my critical questions (which are withheld until presenters and audience have had a chance to demonstrated their critical skill, or to stem movement toward disrespectful or mis-educative comments. An analysis of topics chosen for presentation since in inception of Urban Current Events revealed the following categories (see Table 1). Table 1 also includes examples of related questions asked during the presentations, beginning with the most popular categories, gauged by the topics most frequently chosen. The paucity of articles that directly addressed curriculum and students' learning in urban schools may reflect a media bias rather than prospective teachers' areas of interest.

Dedication to being a good audience member as well as presenter may reflect a commitment to the classroom community and the prospective teachers' interest in their peers' selection of topics. Additional comments made by teacher education students on course evaluations and final reflective papers mentioned the purposefully

constructed classroom community and that they would use the type of activity in their own classroom.

Table 1. Urban Current Events categories and questions

Categories and examples of topics chosen	Questions asked during and after article presentations
School programs or reforms related to testing (No Child Left Behind, issues about grading, cash prizes to students for high scores)	What may be gained and lost in the push for more and more testing? Can we only teach our children to achieve when there is a reward attached? What about intrinsic motivation?
School funding (lack of resources, school budget votes)	What ideas do you have for equalizing the amount of money going to each school?
Hiring practices and school policies relating to teachers and administration in urban schools	What do you think about the fairness of the district's hiring practices?
Issues relating to students health and well being (drug testing, school lunch programs, condom distribution, etc.)	How far can districts go without invading another's privacy?
Issues of race, resegregation, court cases (Supreme Court rulings, initiatives and demographics resulting in segregation of school populations)	What do you think about the mother's comment "How are we ever going to get beyond race if we keep using it?" Why is diversity so important to our children's learning?
Individual "human interest" stories (teens helping each other, student protests)	Do students have a right to keep their cell phones on during the school day? why/why not?
Curriculum (African American history in Philadelphia high schools)	What makes the African American history curriculum so controversial?

Based on the action research data presented in this paper, Urban Current Events appears to provide a way to "put into practice locally and theorize more publicly a commitment to teacher education that meets the needs of the increasingly racially and culturally diverse population and is committed to equity and social justice" (Cochran-Smith, 2004, p. xviii). While there is much room for increasing the efficacy of the UCE activities, articles chosen by prospective teachers have motivated them to develop their thinking skills and abilities in identifying underlying issues, biases, and systemic inequities in urban schooling and education as a whole. The opportunity for students to look closely at a topic helps facilitate the goals of the "larger enterprise of teacher education for social justice" and generate both local knowledge and knowledge that is useful in more public spheres" (Cochran-Smith, 2004, p. xx). In the current age of narrowing curriculum and quantitative measure of outcomes, the UCE strategy places process over content, provides an opportunity to develop prospective teachers' critical stance in a space of nonlinear dialectic interactions, and translates seamlessly into the more global goals of critical thinking The activities do, however, require purposeful design along with ongoing interaction and intervention by a knowledgeable mediator who is committed to furthering critical multicultural thinking.

By sharing the story of Urban Current Events, it is hoped that his action research project will provide sustenance to teacher educators' dialogue about ways to keep the complexity, commitment to social justice, cultural responsiveness and critical multicultural thinking a vibrant part of the teacher education program.

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21. American urban education and Chinese rural education: Comparisons and contrasts

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A United Nations Children's Fund (1999) report concluded that "Education—more than any other single initiative—has the capacity to foster development, awaken talents, empower people, and protect their rights." Yet, in the decade since that report, children in many parts of the world are still not receiving an adequate education.

Education in urban settings in the United States presents a variety of challenges. The single biggest problem in American cities is that of poverty. Other challenges are due to ethnic, linguistic, and cultural diversity; scarce and inadequate resources; high school drop-out rates, and the challenge of recruiting and retaining highly qualified teachers. Interestingly, education in rural China presents very similar challenges. It is the intent of this paper to examine some of the similarities and differences in American urban education and Chinese rural education.

Education in America's cities

In 1954, the U.S. Supreme Court declared segregated public schools unconstitutional. The ruling in *Brown v. Board of Education* set public education on a course toward equality. Yet, more than five decades later, schools are not equal. Children, many if not most of whom are ethnic minorities, living in America's inner cities suffer disproportionately from a failing education system, with black and Hispanic students dropping out of public high schools at much higher rates than whites. Rothstein (1993, p xi)) noted that "Overcrowded, underfunded, dysfunctional schools are most often seen in urban concentrations. Their size and diverse populations appear to be dictated by crowds of immigrants and the urban poor." Of course, all of these elements can be found in schools that are located in suburban and rural areas, however, the fact that schools in cities are all too often marked by these signs of decay makes such features defining characteristics of urban schools.

Many observers link the low academic performance of urban youth to both home and school environments that do not foster educational and economic success. In addition, many educators report on the growing challenges of educating urban youth who are increasingly faced with problems such as poverty, limited English proficiency, family instability, and poor health. The conditions in many urban schools leave many students there floundering in decaying, violent environments with poor resources, teachers, and curricula, and with limited opportunities (NCES, n.d.).

Urban poverty

Among the challenges faced by urban schools are those associated with, and a result of, insidious poverty. David Berliner, in describing its effects, went so far as to call poverty the 600 lb. gorilla in our classroom. The challenges associated with urban poverty include overcrowded classrooms, decaying physical plants, inadequate resources, under-qualified teachers, and a climate of failure. Urban children were more than twice as likely to be living in poverty, than were children living in suburban locations (30 percent compared with 13 percent in 1990). Meanwhile, 22 percent of rural children were considered to be living in poverty in 1990 (NCES, n.d.).

Likewise, urban students were more likely than suburban or rural students to receive free or reduced price lunch (38 percent compared with 16 and 28 percent, respectively). This leads to the obvious conclusion that urban children were more likely to be attending schools with high concentrations of low-income students. Forty percent of urban students attended these high-poverty schools (defined as schools with more than 40 percent of students receiving free or reduced price lunch), whereas 10 percent of suburban students and 25 percent of rural students attended high-poverty schools (NCES, n.d.). There is ample research that suggests that a high concentration of low income students in a school is related to significantly lower academic student performance (Mulvaney, Skolnik, Chung, & Iacovelli 2005).

Social factors associated with poverty create challenges for urban educators, but these factors can, in turn, lead to educational practices that are ill suited to educational achievement. In the introduction to his book, Stanley Rothstein (1993, pp. xii – xiii) observes.

Within urban schools themselves one finds two activities that never vary: an overly corrective pedagogy of inculcation and a bureaucratic impersonality that often deadens the curiosities of inquiring minds. Urban schools are involved in the production of replacement workers; their educational efforts are directed at reproducing the social relations of educational and economic production. They are responsible for sorting out and evaluating the merit of students and assigning them to various tracks in the educational system and, later, in the work force.

These activities can be seen more clearly in inner-city schools, where children attend state institutions that have a history and a culture of failure. But they are also found in the outer rings of the urban setting and in the suburbs, where urbanism has made significant inroads. In all of these state schools there are a similar organizational ethos and structure: bureaucratic and hierarchical lines of communication facilitate the reproductive functions of schooling in mass society. Urban schools bring together licensed teachers and educational buildings that belong to the state. Some of these schools are more successful than others, based on the class position of children who attend them. The more successful schools cater to middle-class students and organize themselves around college-bound curricula and standards of discipline. But urban schools are characterized by educational practices that are much less successful than their suburban counter parts: their locations in inner cities cause them to reflect some of the worst aspects of urban blight as it is developing in the United States at the end of the twentieth century.

The consequences of the conditions and practices in America's inner-city schools are not surprising. One of these consequences is the rate of graduation from high school. Urban schools are noted for significantly lower graduation rates, often due to higher drop-out rates, than suburban and rural schools.

Urban high school graduation rates

During the beginning of the twentieth century, each generation of Americans was more likely to graduate from high school than the preceding one. That trend seems to have been reversed. According to Heckman & LaFontaine (2007 and 2008), the U.S. high school graduation rate peaked at around 80 percent in the late 1960s and, since then, it has declined by 4-5 percentage points. The decline in high school graduation rates is even more pronounced among ethnic minorities in large cities. About 65 percent of African-Americans and Hispanics leave school with a high school diploma.

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An organization founded by retired Army General and former U.S. Secretary of State Colin Powell, *America's Promise Alliance*, recently issued a report entitled "Cities in Crisis" (Swanson, 2008). In that report, they concluded that

> Graduating from high school in the America's largest cities amounts, essentially, to a coin toss. Only about one-half (52 percent) of students in the principal school systems of the 50 largest cities complete high school with a diploma. That rate is well below the national graduation rate of 70 percent. (Swanson, 2008, p. 8)

These low high school graduation rates have significant life consequences for dropouts. Adults without a high school diploma have substantially lower income prospects than adults who have graduated from high school. In fact, the wages of high school dropouts have declined since the early 1970s while those of more skilled workers have risen markedly (Autor, Katz, & Kearney, 2005).

The tragic irony is that, during a period when the financial rewards for being highly skilled have increased, the high school dropout rate in America is also increasing, especially among the urban poor. The result is greater social and economic polarization. While a higher proportion of American youth are going to college and graduating than ever before, at the same time, proportionately more are failing to complete high school.

Academic achievement in American urban schools

Ample evidence indicates that, in many cases, America's public schools are not adequately serving their students. In 1988, only five percent of 17-year-old high school students in 1988 could read well enough to understand and use information found in technical materials, literary essays, historical documents, and college-level texts. This percentage has been falling since 1971 (Hood, 1993).

Since the passage of *No Child Left Behind*, there has been an increased emphasis on standardized testing as the basis for comparison among individuals and schools. As is, no doubt, the case in most countries, comparing scores on standardized tests reveals that some American students score very high, while other students score much lower. In fact, there is a significant and identifiable segment of the student population that scores well below comparable students from other industrialized countries.

According to McWayne, Fantuzzo, & McDermott (2004), living in a city increases the risk of educational failure for low-income children. Children living in poverty in urban centers demonstrate higher rates of school failure than poor children living in other settings. This risk for school failure can lead, as noted earlier, to a lower likelihood of completing high school.

Obviously, all urban school children, even those living in poverty, are not alike. There are high and low achievers in all schools, regardless of the location. However, the basis for comparison, despite standardized testing, is different. High achieving students in poor urban schools measure themselves against a much lower baseline than their counterparts in suburban or rural schools. This may account for some of the differences in relative achievement between urban and suburban school students, when poverty is controlled.

There are other factors that contribute to school success, or failure. For example, children who start their education well before their first day in kindergarten have a significant advantage over those children who come to kindergarten with no experience in a structured learning environment. McWayne, Fantuzzo, & McDermott (2004) point out that preschool classroom quality and neighborhood characteristics are two

factors that are associated with educational attainment. Students who experience quality early childhood education adjust more readily and more smoothly into the school environment. Similarly, Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey (2001) reported that early intervention programs produced significant increases in IQ for poor, minority children, and that those IQ gains were evident in later reading and mathematics achievement scores.

Although the low academic performance in urban schools can be traced to the effects of poverty, it is not just family poverty that produces low academic achievement in American urban schools. Leventhal & Brooks-Gunn (2003) point out that neighborhood poverty, by itself, is thought to have a harmful effect on child development, particularly in large urban centers. It is not just the dire circumstances of the individual poor family that hinders children's academic progress. There are societal influences in poor urban areas that negatively affect the performance of children in these communities. Among the factors that have been identified (Leventhal & Brooks-Gunn, 2003) are the rate of male unemployment, the concentration of affluence, and the racial composition of communities. When these factors are considered, indications are that a student from a neighborhood with these attributes will be at risk for school failure. The influence of these factors on school performance is not direct, but rather the harmful consequences of living in a poor urban neighborhood, with high male unemployment result in lower performances by many urban pupils.

Teacher shortages in American urban schools

The shortage of competent, caring professionals who see themselves as urban educators has long been recognized as a problem (Leland & Harste, 2005). In a recent speech to the Hispanic American Chamber of Commerce, President Barack Obama referred to this problem when he stated:

> America's future depends on its teachers. And so today, I'm calling on a new generation of Americans to step forward and serve our country in our classrooms. If you want to make a difference in the life of our nation, if you want to make the most of your talents and dedication, if you want to make your mark with a legacy that will endure -- then join the teaching profession. America needs you. We need you in our suburbs. We need you in our small towns. We especially need you in our inner cities (Obama, 2009).

Several national studies have shown that minority and poor children are the more likely than their white counterparts to be taught by under-qualified teachers (Berry, 2001; Haycock, 2000). This shortage of qualified teachers is due to several factors.

One cause of the shortage of qualified teachers in American cities stems from the fact that the majority of undergraduate teacher education students is white, from middle class families, and reside in suburban or small town/rural areas. Many universities note that the majority of these teacher education candidates come into their teacher preparation program with the expectation that they would do their fieldwork and student teaching in communities that were similar to the ones from which they came (Leland & Harste, 2005). Thus, a large proportion of teacher education students are predisposed to seek experiences and employment outside of large urban centers.

Many teachers will resist working in urban schools, despite the fact that there are often better employment prospects there. In some suburban school districts it is not uncommon to have a thousand applicants for every one teaching position that opens each year. Brown (2002) speculates that many pre-service teachers avoid apply-

ing for urban teaching positions due to unfounded fears about children, adolescents, and the families that live in cities.

Teacher supply is not evenly distributed across schools, districts, regions, and subject, or grade assignments. For example, a suburban district may have a surplus of teachers while its nearby urban neighbor may struggle to fill job openings. Similarly, in the same district, a school with a good reputation may draw hundreds of applications for one position while a school identified as "failing" may generate little interest among teacher candidates. Therefore, while some communities or regions of the country experience frequent teacher shortages, others operate with relatively full staffing and without the difficulties and added expenses associated with chronic teacher shortages (Johnson, Berg, & Donaldson, (2005). Regardless of the reason, it is clear that the majority of new teachers seek employment in settings other than large, urban centers.

A second factor contributing to the shortage of qualified teachers in urban centers is the high turnover rate among teachers who initially choose to teach in cities. According to the National Center for Education Statistics (U.S. Department of Education, 2008), at the end of the 2003-2004 school year, 17 percent of the elementary and secondary teacher workforce (or 621,000 teachers) left the public and private schools where they had been teaching. The turnover rate for high-poverty schools was greater than for low-poverty schools during this period (21 vs. 14 percent). A decade ago Crosby noted that

> Teacher turnover rate in the urban schools is much higher than in the suburban schools. ... The result is that urban schools, especially those in the inner cities, are often staffed by newly hired or uncertified teachers. These teachers, who were trained to teach students from middle class families and who often come from middle class families themselves, now find themselves engulfed by minority students, immigrants, and other students from low income families – students whose values and experiences are very different from their own. Teacher training institutions have not placed sufficient emphasis on preparing new teachers to work in schools that serve minority students. (Crosby, 1999, p. 302)

According to the National Center for Education Statistics (2005), it is estimates that 10% of teachers leave during their first year of employment and another 25%-50% resign during their first three years of teaching.

Clearly, some attrition is inevitable. Teachers retire, leave for a number of personal reasons, and a few are dismissed from their jobs. However, nearly half of all teachers who enter the teaching profession, leave it within five years, and the schools most significantly affected by this high attrition are those in high-poverty or high-minority communities. Students in such schools are in desperate need of expert, high-quality teachers if there is to be any hope of improving academic achievement. Yet urban schools are almost twice as likely as suburban and rural schools to have beginning, and therefore inexperienced, teachers (Alliance for Excellence of Education, 2005).

A reasonable question to ask is: why do teachers leave the profession that they have worked so hard to enter? Among the reasons that teachers cite are a lack of support and poor working conditions.

Johnson, Kardos, Kauffman, Liu, and Donaldson (2004) compared the experiences of teachers working in low-income schools with those working in high-income schools. They concluded that that teachers working in low-income schools "receive significant less assistance in the key areas of hiring, mentoring, and curriculum" than their colleagues working in t high-income schools and referred to this disparity as the

"support gap" (p.2). In another study, Strunk, & Robinson (2006) used a theoretical framework based on occupational wage theory and social identity theory. They found that teachers are more likely to leave if (1) they are specialized instructors (especially in a foreign language); (2) they have a probationary teaching certificate; (3) they are less experienced; (4) the racial composition of the students is heavily minority; (5) the students racial composition is less matched to their own race/ethnicity; and, for teachers of some races, (6) the teaching staff's racial composition is more matched to their own race/ethnicity.

In a study that examined the phenomenon of attrition among urban teachers, Alkins, Banks-Santili, Guttenberg, & Kamii (2006) suggested that urban teachers' reasons for leaving the profession early include poor working conditions, increased pressure to conform to federal and state mandates, lack of professional work environment, and inadequate school-based and district-based support. These authors also suggest that we should examine more closely the role that higher education can play in providing beginning teachers with the tools, skills, and abilities to be more successful in urban settings. This might include a critical examination of how issues of race, socioeconomic status, language, and culture are embedded in one's teaching philosophy and, as a result can affect virtually every decision that a teacher makes.

What can be done to address the challenges of urban schools?

The challenges faced by schools in America's cities are not just school problems. These problems are not simply those of too few teachers, under-qualified teachers, large classes, or inadequate resources. Those factors are indeed problems, but unquestionably, there is more to the problem both in and out of the schools. The first step must be to acknowledge that we have problems within our society and begin to construct ways to fix our communities and all of our institutions, including our educational structures. Such changes will help all school children, and especially those in urban settings. We need the support and commitment of our entire society, including those affiliated with and served by poor urban schools and those in higher performing schools in suburban communities, if we are serious about addressing these problems. Only then will we be able to begin to repair the gap in academic achievement and in life outcomes that exists between students from urban schools and those students outside of our inner cities.

Education in rural China

China educates the world's largest school population, some 300 million children. Educational policies are formulated by the Ministry of Education of the central government, and implemented in provinces, cities, towns, and villages. Educational reform, instituted after 1976, invigorated education, especially in urban centers. But in less-developed rural areas, many schools still fail to meet national standards for basic facilities. Meanwhile, in the United States, educators at the national, state, and local level struggle to make sure that no child is left behind.

As in many American urban schools, the pressures on rural children in China to leave school are significant. There is a large gap between education and employment opportunities—when there are few jobs requiring education, there is less incentive to get an education. In addition, both in China and in the US, a significantly large portion of the financial burden for supporting schools falls to the local level, where financial resources are often very limited.

Many doors remain unopened to poor, rural children in China, as they do to poor, urban children in America.

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