ETEN 20
The Proceedings of the 20th Annual Conference of the European Teacher Education Network

Editors:
Kristiina Kumpulainen & Auli Toom
University of Helsinki
Published jointly by ETEN (The European Teacher Education Network), University of Helsinki, Department of Teacher Education, and CICERO Learning, University of Helsinki.

© 2010
ETEN Secretariat
Højvangseminariet International Office
Skolevej 6
DK 2600 Glostrup
Denmark

www.eten-online.org

Printed at the University of Helsinki,
Department of Teacher Education,
P.O. BOX 9 (Siltavuorenpenger 5A),
FI-00014 University of Helsinki
Finland
The 20th annual ETEN Conference was hosted by the University of Helsinki, Finland in April 2010. The theme of the conference was *Building Schools for the Future* which was elaborated from diverse angles by the keynote speakers and by the participants of the TIG sessions within their frame of reference.

This conference proceedings publication is based on papers that were presented in the TIG-sessions during the conference. These papers introduce research studies, document professional practices and development programs and take stands on educational policy issues, reflecting the theme of the conference. The papers included in this publication represent the following Thematic Interest Groups (TIGs):

1. Educational Technology
2. Ethics and Professionalism
3. Internationalization
4. Movement Health and Outdoor Learning
5. Myths and Fairy Tales
6. Religion and Culture
7. Science Education
8. Urban Education
9. Mathematics Education
10. Reflective Practice

In addition to inspiring conference presentations and accompanying discussions as well as celebrations of the two decades of the influential work of ETEN in the promotion and development of teacher education and social educator education in Europe and beyond, this conference is likely to have a special place in our memories. The volcanic eruption in Island and the ash clouds it created influenced the lives of most ETEN members and conference participants, preventing some of us not being able to join in the conference and others not being able to leave the conference site and to go home. In addition to this conference proceedings publication, there are many stories to be shared by the ETEN colleagues about their travelling adventures to and from the conference.

In all, the incident raised a number of thoughts and feelings among the ETEN community. On the one hand, it challenged our tolerance and patience towards occurring events. On the other, it made us rethink the world in which we live today. In many respects, it was also the volcanic eruption that enriched the dialogue and reflection in the conference.

The volcanic eruption clearly woke us up, reminding us about the grounding elements for a good, meaningful and sustainable life. The incident pushed many of us to re-think and appreciate the immeasurable meaning of friendship, family, supportive communities and professionalism. It is these elements and values that they carry within them that should also be harnessed in education, also in schools for the future.

Kristiina Kumpulainen, PhD
Director
Finnish National Board of Education
Helsinki, FINLAND

Auli Toom, PhD
Adjunct Professor
Faculty of Behavioural Sciences
University of Helsinki
Helsinki, FINLAND
CONTENTS

I Educational Technology

1. ActiveAquarium – Virtual Fish Reflecting Your Physical Activity
   Henna Mikkola, Ari Rahikkala, Kari Kumpulainen and Jukka Riekki………………..7

II Ethics and Professionalism

2. Making the Case for Ethics and Professionalism Education in Teacher Preparation
   Programs: Avoiding the Technicist Trap
   Joseph Beckford………………………………………………………………………20

3. Norms in a Multicultural Society: Challenges in Education
   Inger Marie Lindboe………………………………………………………………25

4. Entrepreneurial Education: The Teacher Role in the Stimulation of an Entrepreneurial
   Attitude on Bachelor Level Students
   Inês Pinho and Carla Serrão…………………………………………………………35

III Internationalization

5. The Effect of Study abroad on the Development of Student Teachers: A literature Study
   Astrid van Schoonacker-de Groot…………………………………………………46

6. Do University Study abroad Participants Make a Cultural Transition?
   Melinda Schoenfeldt………………………………………………………………57

IV Movement Health and Outdoor Learning

7. Inclusion in Physical Education in the United States
   David G. Lorenzi……………………………………………………………………67

V Myths and Fairy Tales

8. Portugal and the Sea – A Journey
   Cristina Ferreira Pinto………………………………………………………………75

VI Religion and Culture

9. Using Religion as a Platform to Promote Discussion in Teaching School Law and
   Policy Development
   George Foldesy and David Holman…………………………………………………90
10. The Tale as Source: Concerning the Value of Narratives in the Teacher’s Training Programme
Niek de Wilde...........................................................................................................93

**VII Science Education**

11. A Live Animal in Your Classroom
Mart Ottenheim......................................................................................................101

12. Discussion in Biology Classroom
Nino Chachiashvili..................................................................................................106

13. Real Life Learning in the Real World
Gert van der Slikke, Ilonka Prins, Mart Ottenheim and Ellen Sjoer......................110

**VIII Urban Education**

14. Parental Involvement in Children’s Education: The Special Position of Illiterate Parents
Adri Menheere.........................................................................................................122

Janice Fournillier, Christine D. Thomas, Pier Junor Clarke, and Draga Vidakovic.........................................................................................................................127

16. Equity Audits and Early Childhood/Elementary Pre-Service Teachers
M. Francyne Huckaby and Michelle Ackels.........................................................139

**IX Mathematics Education**

17. Uses and Goals of Mathematical Tasks: An Experiment with Pre-service Teachers
Alexandra Gomes ......................................................................................................149

18. Pattern Tasks with Geometric Transformations in Elementary Teachers’ Training: Some Examples
Isabel Vale and Lina Fonseca.................................................................................154

19. Learning Rational Numbers: A Study on 6th Grade Students’ (Mis)Conceptions of Fractions
Ema Mamede and Paula Cardoso.............................................................................163
X Reflective Practice

20. The Use of Arts Based Learning as a Way of Deepening Understanding, Exploring Meaning and Prompting Action

Shaun Hughes

174
I Educational Technology
I. ActiveAquarium – Virtual Fish Reflecting Your Physical Activity

Henna Mikkola, Ari Rahikkala, Kari Kumpulainen and Jukka Riekkki
University of Oulu
Oulu, Finland

Objectives - While new information and communication technologies have become part of our daily lives, children’s and adolescents’ physical activity (PA) has decreased dramatically according to many studies. Also the obesity is high in Finland among adults. The aim of the research reported here was to investigate measuring individuals’ physical activity with a wearable device (activity monitor) and presenting the measured physical activity level in a virtual environment (ActiveAquarium) as the appearance and behavior of virtual fish. Specifically, we investigated the experiences of teacher education students and staff of the Faculty of Education on measuring PA levels and presenting them in ActiveAquariums that were displayed on cafeterias often visited by the test users and their colleagues. In addition the article discusses the possible impact of activity monitors and ActiveAquarium on physical activity and motivation among the staff and students.

Methods – The testees (N=25) were staff of the Faculty of Education (n=13) and teacher education students (primary school) (n=12), who had physical education (P.E.) as a minor subject. Questionnaires, group interviews and observation were used as methods to collect research data.

Results – The findings indicate that the testees were quite motivated in using both the activity monitor and the ActiveAquarium. The idea of a “virtual pet” as reflecting ones’ activity was considered to be a familiar and motivating idea for today’s children. The testees were already quite active physically so this experiment did not increase their daily activity.

Conclusions - Technology and media belong naturally to people’s life. A physical education technology and virtual avatar representing your physical activity could be one way to make people aware of the importance of a physically active lifestyle and motivate them to become physically active.

Keywords: Physical education, educational technology, activity monitor, motivation, Active aquarium, avatar

Introduction

The importance of physical activity is becoming more and more evident. It is well known that physical activity improves numerous health conditions. Physical inactivity is associated with many diseases, including stroke, heart disease, high blood pressure, diabetes, depression, and obesity. Studies show that adopting a physically active lifestyle in the early years improves health and quality of later life. (National Association for Sport, 2004.) The challenge in today’s society is to enhance the wellbeing of people of every age and to motivate people to adopt a physically active lifestyle.

Nowadays, the cultural environment includes many technological devices and people who use new technology. Technology and economic incentives tend to discourage activity, technology by reducing the energy need for activities of daily living,
and economics by paying more for sedentary than active work (William et al., 2007). The work reported in this article was conducted in the FutureStep project. This project aims to study the possibilities and confines to enhance children’s’ exercise motivation and wellbeing by using physical education technology in formal and informal contexts. Schools and physical education teachers play an important role in supporting children to adopt a physically active lifestyle. It is notable that wellbeing can be learnt in the formal education context like all the other subjects such as mathematics and literature.

The FutureStep project is part of the activities of the Future School Research Center and 1st Wave Programme coordinated by the University of Oulu, Faculty of Education. The Future School Research (FSR) 1st Wave Programme is a multidisciplinary programme funded by the European Social Fund for the years 2009-2011. The FSR’s aim is to investigate, elaborate and foster innovative pedagogical practices. The main partners in this study were the Faculty of Technology, City of Oulu, Department of Education and Polar Electro Oy. FSR is also cooperating with other research consortia and enterprises.

Individuals’ physical activity level can be measured with wearable activity monitors. The ActiveAquarium is one possible solution to motivate children in school environment to be more physically active. ActiveAquarium presents individuals’ measured physical activity levels in public places shared by the individuals and possibly also by others whose PA is not monitored. PA levels are presented as the appearance and behavior of virtual fish.

The pilot study reported here was conducted to test ActiveAquarium before it is used and studied as a pedagogical tool in school environment. The testees were staff of the Faculty of Education and teacher education students.

This article discusses what kind of experiences this user group has with activity monitors and ActiveAquarium. The article also discusses the possible changes in physical activity and motivation among testees who used activity monitors and ActiveAquarium. People use technology every day and they find it interesting. This study seeks answer to the demand to develop new research based pedagogical practices for schools and physical education classes. This article describes and reports preliminary results of test using activity monitors and a virtual Aquarium in addition how these could be used in school environment.

**Literature review**

This chapter is devided into two related sections. First, there will be discussion of the *reflection in learning society*, and secondly, the general aspects of the *physical activity* of human beings will be reviewed.

Donald Schön is sometimes described as ‘the great theorist of the *learning society*’ (Ranson 1998). He was part of the first wave of thinkers around the notion. Schön (1971) takes the loss of the stable state as his starting point. That means that our society, including all of its institutions, is in continuous process of transformation. We cannot expect new stable states that will endure for our own lifetimes. However, with technical change continuing exponentially its pervasiveness and frequency, we are uniquely threatening the stable state.

According to Smith (2009), two key themes arise out of Donald Schön’s discussion of learning systems: The emergence of functional systems as the units around which institutions define themselves; and the decline of centre-periphery models of institutional activity. Schön contrasts classical models of diffusing innovation with a
learning system model. In classical model for diffusion of innovations feedback is seen as a loop that moves from secondary to primary centre, and back to all secondary centres. In learning system’s model the feedback loops operate local and universally throughout the systems network.

Reflection is one of the key concepts in Schön’s thinking. Several highly valued researchers like Dewey, Kolb and Vygotsky, have also paid attention on importance of that concept. Generally speaking, reflection refers to intentional observe of experiences, and it is seen as active mental component of a learning process. Reflection is considered to be internal when learner focuses on his/her own thinking, and external when reflection focuses on situation where activity is supposed to occur (Boud, Keogh & Walker 1985). According to McAlpine (1999) reflection can be activated via diverse incentives. Furthermore, reflection requires cognitive participation, and willingness and ability to accomplish tasks in new way (McAlpine & Weston, 2000).

Schön (1983) identifies two kinds of reflections: 1. Reflection-in-action, which involves looking to our experiences, connecting with our feelings, and attending to our theories in use. It entails building new understandings to inform our actions in the situation that is unfolding. 2. Reflection-on-action, that enables us to spend time exploring why we acted as we did, and what was happening in a group. In doing so we develop sets of questions and ideas about our activities and practice. Later (1999) McAlpine et al completed Schön’s list by adding the third phase: 3. Reflection-for-action. Doing so they refer to obvious need for further / future planning of the action. Planning is supposed to occur during the whole learning processes.

Recently, technological progress has enabled a new way to reflect our experiences. According to Castronova (2003), the internet has given birth to an expanding number of shared virtual reality spaces, with a collective population well into the millions. These virtual worlds exhibit most of the traits we associate with the Earth world: economic transactions, interpersonal relationships, organic political institutions, and so on. A human being experiences these worlds through an avatar, which is the representation of the self in a given physical medium. As this article demonstrates, also physical activity of a human being can be reflected via virtual avatars. Castronova’s Theory of the Avatar (2003) introduces three principles for avatars that apparently contribute strongly to their popularity. The first principle is division of labor, the second is equality of opportunity, and the third principle is inequality of outcomes based on merit only. ‘Merit’ in last principle refers to working long hours at the game, being socially or politically skillful, etc. As described later, in ActiveAquarium merit refers clearly to the physical activity of a human being in the real world.

According to the Eurobarometer 2009 Finnish people are among the most physically active people in European Union (Special Eurobarometer, 2009). According to a Finnish national physical exercise research (2009-2010) 55 per cent of Finnish adults aged 19-65 years are physically active at least four times a week and 35 per cent two to three times in a week. Sixty-two per cent of the respondents informed that they are mos commonly engaging on moderate physical activity and 22 per cent of the respondents in vigorous physical exercise. Most common sports among this age Finnish people are walking, cycling, going to the gym, skiing and adults are exercising mostly on their own or in a group. Only 14 per cent belong to a sports club. (Kansallinen liikuntatutkimus 2009-2010.)

The average body weight and body mass index have increased during the past decades, especially among Finnish men. However, during 2002-2007 the change in body mass index was not significant but still the obesity is high in Finnish adult population. In 2007 men’s average body mass index was 27 kg/m² and women’s 26,5
kg/m$^2$. From the people who were significantly overweight (body mass index 30 kg/m$^2$) 19 per cent were men and 21 per cent women. Waistline has grown regularly among women and men from the year 1987. (Peltonen et al., 2008.)

There are several physical activity recommendations for children, adolescents and adults developed by several organizations and agencies. According to the UKK Institute, adults should engage with moderate physical activity for 2.5 hours in a week or 1 hour and 15 minutes vigorous physical activity. Also Physical Activity Guidelines for Americans recommends these same amounts of physical activity for adults. This means 30 minutes moderate physical activity in a day. The American Heart Association’s recommends that adults should do moderately intense cardio 30 minutes a day, five days a week or do vigorously intense cardio 20 minutes a day, 3 days a week. Moderate-intensity physical activity means working hard enough to raise your heart rate and break sweat, yet still being able to carry on a conversation. To lose weight or maintain weight loss, 60 to 90 minutes of physical activity may be necessary. The 30-minute recommendation is for the average healthy adult to maintain health and reduce the risk for chronic disease. (William et al., 2007.)

As mentioned above Finnish adults are meeting the recommendations of physical activity well but still the obesity is high in Finland. It is important to motivate people to be even more physically active or maintain the physical activity levels recommended. In addition the physical endurance of adolescents, both Finnish girls and boys, has deteriorated significantly (Huotari, 2004). Also the Finnish National Board of Education research shows that 15-year-old children’s fitness has decreased around 25 per cent between 1998 and 2003. Half of the 9th graders are not exercising enough and one fifth of the adolescents do not exercise outside the physical education classes. (Huisman, 2004.) Finnish children’s fitness and physical activity can be best described as polarised (Kalaja & Kalaja 2007).

Physical exercise should belong naturally to every child and adult life. There are differences, though, in how children and adults are motivated to exercise and how they enjoy exercising. The achievement goal theory (Duda, 2001) is a prominent approach that aims to explain motivation and behaviour in physical exercise settings. This theory suggests that two distinct motivational tendencies or achievement goal perspectives prevail in achievement situations and influence the way competence information is interpreted: 1) task or mastery orientation; and 2) ego or performance orientation. The theory proposes that these goal orientations define the way people tend to view their ability in a given context. (Hagger & Chatzisarantis, 2005.)

Physical exercise should be fun, enjoyable and give a feeling of competence to all. From the social and ethical developmental view it is important to use and develop new methods and pedagogical practises for schools that enhance social interaction and independent initiative. (Heinonen et al., 2008.) Studies show that instead of competition and comparisons, children enjoy physical education more if teachers use practices that aim to concentrate on the individual progress of a pupil (Pietilä, 2008). This kind of learning environment can be described as a task or mastery climate and the success is defined in terms of effort and improvement in individual progress. An ego or performance climate is the opposite kind of climate. It is typical of an ego climate to make interpersonal comparisons. In an ego climate, the children are competing against each other instead of themselves. Research shows that an ego climate creates negative feelings, low enjoyment, and higher anxiety. (Duda & Whitehead, 1998.)

Active Aquarium
It is evident that pedagogical practices that support a task or mastery orientated motivational climate need to be studied and created. The most important thing is to concentrate on personal achievement and give a feeling of competence to all instead of competing against each other. Technology can be used to support this goal, because the main idea using physical education technology in sports situation is to get feedback on individual performance. The technology used in this study, the activity monitor, registers all effective active motion, shows it graphically in a training diary and gives personal feedback. The monitor recommends 1.5 hours of physical activity per day. The activity monitor displays calories burned, distance covered, active steps, and the duration of your active time, and the effects of physical activity on your overall fitness.

The activity monitor and the training diary are sufficient for monitoring physical activity. However, the monitor and the diary focus on presenting activity data for a single individual as numbers and simple progress bars. In this study, we investigate a new user interface for presenting the amount of physical activity of a group of individuals in public spaces. Each individual has an own fish avatar in a virtual aquarium (i.e. ActiveAquarium) that is shown on a wall display. The appearance and behaviour of an individual’s fish reflects the amount of PA of the individual – according to Castronova (2003) it is a question of a meritocracy in virtual world.

When the individual has performed the planned amount of PA, her/his fish is bright and swims fast in the upper part of the aquarium. On the other hand, lack of PA results in a dark fish swimming slowly at the bottom part of the aquarium. Moreover, the nickname of each individual is shown inside an “air bubble” periodically. The bubble originates from the corresponding fish and slowly flows upwards. The bubble presents also one to five stars according to the achievement of the target and the total number of points collected so far. The unit of the points is not presented, in practise the values reported by the activity monitor are summed up. In addition, each individual’s fish can have different appearance, as the aquarium hosts a number of different artificial fish species (see Fig. 1).

The system is presented in Figure 2. The individuals wear the activity monitors on their wrists. They are instructed to upload data from the activity monitors to the training diary at regular intervals. Uploading was performed by placing a monitor in contact with the reading device (see Figure 2) and signing in to the PC application. The ActiveAquarium read data from the training diary once a minute and updated the fish’s appearance and behaviour accordingly.

Please visit http://futureschoolresearch.wordpress.com/edutv/futurestep to see a short introduction video of the ActiveAquarium.
**Figure 1.** Different fish species.

**Figure 2.** The system for measuring and presenting physical activity level.

**The study**

The pilot study was conducted simultaneously with two groups at the University of Oulu, Faculty of Education. The first group (n=13) included staff of the Faculty of
Education. It was a heterogeneous group consisting of 2 males and 11 females ages between 28-54 yrs. The second group (n=12) included teacher education students (primary school). These students had physical education (P.E.) as a minor subject. Thus they were likely to be more physically active than an average group of students. They were mostly 3rd year students, 8 males and 4 females, ages varying between 22-35 yrs. The research took place in October – November 2009 altogether for 4 weeks. All the participants in both groups were given an activity monitor. They were introduced with the quality of the monitor and also they were registered as users of the training diary site through which their activity level was uploaded. At the same time the idea of the ActiveAquarium was introduced. The participants were able to choose a fish species which they liked the most. The ActiveAquarium was visible for the staff of the Faculty of Education in their coffee room and the PC for uploading was located in the same room. For the students taking part in the experiment the aquarium was placed in the student cafeteria as well as the PC for uploading the data from the activity monitor.

Research questions

The following research questions were stated:

1. What kind of experiences do teacher education students and staff of the Faculty of Education have with activity monitors and ActiveAquarium?
   a. How does the ActiveAquarium reflect the physical activity of the individual visually?
   b. How could the image be improved?

2. What kind of experiences research participants have about activity monitor’s and ActiveAquarium’s effects on their physical activity?

3. What kind of pedagogical possibilities as well as problems the use of the ActiveAquarium produces in school environment according to the testees?

These questions guided researchers in the collection and analysis of the data.

Data collection and analysis

This study used both quantitative and qualitative approaches to describe and analyse the staff’s and students’ experiences to use activity monitor and ActiveAquarium. The quantitative data was collected by means of two questionnaires; one was filled in the beginning for collecting background information and another questionnaire in the end of four weeks period. First questionnaire (13 staff members and 12 students) was gathered in October 2009 and it covered the participants’ background information and their physical activity habits. Participants filled this questionnaire before they got a personal activity monitor. The second questionnaire (11 staff, 11 students) was gathered in November 2009 and it covered questions from the experiences to use activity monitor and ActiveAquarium. Also conceptions of activity monitor, ActiveAquarium and their effects on their physical activity and motivation were asked.

At the end of the pilot study period also a semi-structured interview was used as a method. After collecting the second questionnaire both groups were interviewed concerning the experiences of activity monitor and the ActiveAquarium.
The staff of the Faculty of Education was also able to give feedback by writing their ideas on a paper placed in the same coffee room as the ActiveAquarium was placed.

In this study we used basic statistics. The quantitative data was analysed with SPSS 17.0 (Statistical Package for Social Sciences) program for Windows. The interviews were analysed using content analysis (Neuendorf, 2002).

Findings

The physical activity of the pilot study group

The staff of the Faculty of Education reports that they are quite active physically. Seventy-three per cent reports that they participate in organized physical activity 1-2 times every week at least 30 min or more. In addition 91 per cent of them are physically active daily or at least 3-4 times per week. This includes everyday physical activities like commuting to work, house work or cycling etc.

Table 1. Physical activity of the staff

<table>
<thead>
<tr>
<th></th>
<th>3-4 times week or more</th>
<th>1-2 times week</th>
<th>2-3 times in a month</th>
<th>Once a month or less</th>
<th>Never</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily physical activity 30min or more</td>
<td>91 %</td>
<td>9 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Participation in organized sports 30min or more</td>
<td>0 %</td>
<td>73 %</td>
<td>9 %</td>
<td>0 %</td>
<td>18 %</td>
<td>100 %</td>
</tr>
</tbody>
</table>

The students of the faculty report that 15 per cent of them participate in organized physical activities 1-2 times per week, 46 per cent as often as daily or 3-4 times per week. Every day or 3-4 times per week physically active students claim to be 92 per cent out of the participants.

Table 2. Physical activity of the students

<table>
<thead>
<tr>
<th></th>
<th>3-4 times week or more</th>
<th>1-2 times week</th>
<th>2-3 times in a month</th>
<th>Once a month or less</th>
<th>Never</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily physical activity 30min or more</td>
<td>92 %</td>
<td>8 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
</tr>
<tr>
<td>Participation in organized sports 30min or more</td>
<td>46 %</td>
<td>15 %</td>
<td>8 %</td>
<td>8 %</td>
<td>23 %</td>
<td>100 %</td>
</tr>
</tbody>
</table>

In average this adds up to at least 2 h 30 min of physical activity in a week. One could argue that the physical activity of both groups is well in line with for example the recommendations of U.S. Department of Health and Human Services or with the Finnish UKK institute.

Effects of the experiment on the physical activity of the participants

The students and the staff were asked about their everyday physical activity prior to and during the experiment, but there were little change in these. The students reported
that prior to the experiment 61 per cent (n=13) of them participated in organized sports at least 1-2 times per week, but during the experiment 82 per cent (n=11). All of the participants in both groups report that their daily physical activity either stayed the same (82 %), or increased (18 %) during the 4 weeks period. Separate question was stated concerning the means of transportation to the university for work / studies, but there was no significant difference in these.

**The experiences of staff and the students on using activity monitors and the ActiveAquarium**

**The activity monitor**

It seems that both the staff and the students were quite motivated with using the activity monitor and taking part in this experiment since all (100%) staff members stated that they used the monitor everyday or 5-6 times / week. Ninety-one per cent of the students claim to have used the activity monitor everyday or 5-6 times / week.

Walking and jogging were the most common forms of collecting activity mentioned by the students and the personnel of the faculty. The personnel also said that riding a bicycle (the activity monitor attached around ankle) as well as nordic walking, walking a dog and cleaning the house amounted as activity registered by the monitor.

**The ActiveAquarium**

Also the aquarium seems to interest and motivate especially the staff since they claim that all of them (100 %) observed their own fish based on its appearance at least 3-4 times per week or more. At the same time they also checked the activity of other fish and also followed the points shown by the fish. Half of the staff also reported that they totally agree or agree with the statement that “it was important that my fish looked bright”.

More than 50 per cent of the staff members agreed that their fish represented their physical activity well. They also reported that if they were not physically active enough they could see it in the appearance of their fish.

The students did not show so much interest towards the aquarium since they reported observing the fish 3-4 times per week or less. Some (27 %) even claimed that they did not observe their fish at all during the experiment. Also 60 per cent of the students either disagreed or totally disagreed that their fish reflected their physical activity well. The brightness of the fish was not important to the students since 64 per cent disagreed or totally disagreed and no-one totally agreed with this statement. The reason for not using the ActiveAquarium so actively became clear from the interview. One student summarized it: “We had several PE lessons elsewhere so I did not come to the university just to load my activity to the personal training system”. This indicates how important it is to have a good location for the ActiveAquarium. The best location would be such that the users would see the aquarium in the midst of their daily activities.

Both groups had several suggestions on how to improve the appearance of the fish in the aquarium. Among other things were mentioned that the fish could grow larger in size when activity level increases, even turn into different species. One suggestion was that the fish could swim faster and have facial impressions, for example a smile. Another was that the colours of the fish could be brighter when the activity
level goes up and when the activity level decreases instead of only turning gray and slow the fish could swim with their belly up. Participants were wishing clearer differences between the fishes. In the interview one testee concluded that “it was hard to tell was the fish getting gray or turning bright, the difference between an extremely active and just an active fish was non-existing”. The use of points (calories) appearing with the fish divided opinions: the need was questioned because the number was not always very accurate, but also someone wanted to emphasize it more when reflecting the activity.

Pedagogical practices for the use of the ActiveAquarium and activity monitor in school context

The fish in the aquarium was compared with the virtual pet idea which is believed to be a familiar idea for most of today’s children and therefore a good way to approach their world. In addition the participants adduced some ideas in that case that the aquarium is to be used in school environment. One testee discussed that the use of visible points as an indicator of physical activity is not a good idea since it might lead to competition. He/she argued that the activity monitor is not accurate thus it might show false amount of activity. He/she concludes that there should be some other reward for the activity than points.

Also the importance of the immediate feedback for the child was brought up. “There should not be any delay at all. The true activity should be visible all the time”. Some subject integration ideas also came up. For example it was suggested that everyone should have the opportunity to design one’s own fish. Also it was suggested that familiar fish species from the Finnish nature should be used instead of foreign ones.

Collaboration – working towards a common goal or have a common topic for daily discussion – was also brought up as a point of view. This kind of a project and an application in a public space can unite people.

Conclusions

Children and adolescents are interested in technology and they use it every day. Technology can be an important part to teach children to understand how physical exercise affects their health. This pilot study was conducted to test ActiveAquarium and get ideas from the testees to use it in the school context. In FutureStep project the aim is to use technology in a way that it can help children to learn to observe analytically their physical activity and development of their physical condition. The most important thing is to support all children to become physically active and adapt a physically active lifestyle.

This study shows that the ActiveAquarium together with an activity monitor might be a possibility for some to adapt a physically active lifestyle. According to these preliminary findings it obviously offers a new and motivating platform for intentional observe of experiences, for internal and external reflection. Like McAlpine (1999) suggest, ActiveAquarium can operate as a stimulating incentive for activating reflection.

It will be interesting to see how the use of an activity monitor and the Active Aquarium motivates children and adolescents to be physically active in the school context. That is the next step of this project. The use of those applications may support both ego oriented and task oriented motivation. It is possible that the individual
feedback shown by the activity monitor is reason enough to continue exercising for some. On the other hand the nature of the Aquarium with the chance to make one’s activity visible to others, to compare one’s activity with the others and even to compete a little might be the source of motivation for the rest. That is what Castronova (2003) calls as ‘merit’ in his theory of avatar.

This study has some limitations because of the small size of the pilot study group. The findings represented above are the preliminary results of the development study conducted in the year 2009. The study about ActiveAquarium in the school context and Aquarium’s possibilities to motivate children to be physically active will be conducted in 2010 and reported later. The challenge will be to motivate children to be physically active in longer period of time. In the future it will be studied further how could ActiveAquarium work as a motivational tool in longer period of time. It is also interesting, how long aquarium should motivate pupils. Notable is also to study how aquarium’s publicity influences the classroom surroundings and pupils behaviour and in what way publicity can be used positively to improve children’s physical activity.

References


Pietilä, M. (2008). Opetushallituksen kuulumisia. Oppimista arvioidaan tavoitteiden saavuttamisen kautta. [Hearings from National Board of Education. Learning is evaluated according to how goals are achieved. (p. 8-9.)] Liito. Liikunnan ja terveystedon opettaja.


II Ethics and Professionalism
Among the many challenges to education, both worldwide, in addition to the United States is the de-professionalizing of the teaching profession. The mechanism for this degradation can be seen in political moves to re-define education to that of compliance with various testing and accountability protocols. Through over emphasis upon these protocols, the focus of education and the responsibility of educators to the youth they serve becomes too narrowly focused. The teacher becomes relegated to the role of a “technicist” (or clinician), whose primary responsibility is to ensure that students pass competency tests. These actions challenge our concepts and values as to the proper role of teachers, and they challenge us to reflect upon whether or not teaching is a true profession.

In response, education is called upon to respond appropriately, which means to accept the challenge, analyze the roles and responsibilities expected of teachers, and provide argumentation and documentation that either support or refute teaching as a true profession. Most educators will passionately argue for teaching as a profession. However, by what objective criteria is the claim made? Are legitimate elements of a profession high pay, a college or university degree or status? If they are something else, then upon what criteria can we defend our argument? To address this, a quick review of research leads us to evaluative criteria as defined by Pemberton and Pendergraft.

Pemberton and Pendergraft propose eight evaluative criteria for defining a profession. These are:
- A Body of knowledge – there is a specialized body of knowledge that surrounds the occupation.
- Specialized education – there is a specialized degree that accompanies the occupation.
- Client service – practitioners are primarily motivated by the need to serve people.
- Community endorsement – standards, and in some cases accreditation or licensure, accompany the occupation.
- Long-term commitment – there is a long term (emotional) commitment to the occupation. It is not an occupational stepping stone.
- Shared, community-based values - there is a culture of service which has its own vocabulary, identity, and sense of direction.
- Values that relate to greater social values – there is an intense commitment to social values such as freedoms, such as that of thought, action and association, equitability, and intellectual inquiry.
- Code of ethics – there are sets of principles and ideals to which the occupation is committed.

It would seem that teacher preparation meets these criteria of being a profession with the possible exception of a “Code of Ethics.” It is easy to formulate points in support of each of the first seven points. It can be argued that all eight points do not need to be
addressed in order for teaching to qualify as a profession. However, as ethics holds a major position in this discussion (ethics and professionalism), it is difficult to reason that it should not factor in a significant manner to this discussion.

While codes of ethics exist for educators, a quick search shows they are most commonly externally applied, usually by some external rather than self-regulatory body, and they are usually focused upon the punitive consequences of improper conduct. They hardly aspire to sets of principles and ideals to which teaching is focused or to which members of the education occupation commit to aspire. An typical example of this is the code of ethics and teaching standards as promulgated as statute for the State of Alaska, as follows:

20 AAC 10.010
(a) The following code of ethical and professional standards governs all members of the teaching profession. A violation of this section is grounds for discipline as provided in AS 14.20.030.
(b) in fulfilling the obligations to students, and educator;
   (1) repealed
   (2) may not deliberately distort, suppress or deny access to curricular materials or information in order to promote the personal view, interest or goal of the educator;
   (3) shall make every reasonable effort to protect students from conditions harmful to learning or to health and safety;
   (4) may not engage in physical abuse or sexual contact with as student and shall report to the commission knowledge of such act by an educator;
   (5) may not expose a student to unnecessary embarrassment or disparagement;
   (6) may not harass, discriminate against or grant a discriminatory advantage to a student on the grounds of race, color, family, social, or cultural background, or sexual orientation; shall make reasonable effort to assure that a student is protected from harassment or discrimination on these grounds; and may not engage in a course of conduct that would encourage a reasonable student to develop a prejudice on these grounds;
   (7) may not use professional relationships with students for private gain;
   (8) shall keep in confidence information that has been obtained in the course of providing service, unless disclosure serves a compelling professional purpose or is required by law;
   (9) shall accord just and equitable treatment to all students

For the most part, the remainder of the statute simply repeats this same language in the contexts of the educator fulfilling his or her responsibilities to the public and to the “profession”. The Illinois Institute of Technology, which has become a storehouse of information and documents related to codes of ethics states, “codes of ethics typically articulate principles and guidelines shared among members of a group.” Citing the code of ethics as drafted by The University of Southern California, its language establishes “two pillars which predicate ethical behavior: “a commitment to discharging our obligations to others in a fair and honest manner, and a commitment to respecting the rights and dignity of all persons.” It goes on to state, “the relationship between a student and professor and among professors are sacred ones and should not be exploited for base motives or personal gain.” It further states, “we try to do what is right even of no one is watching us or compelling us to do so.” Former college football star and later member of the US Congress J.C. Watts, made a similar statement when he said, “character is how you conduct yourself when no one else is looking.” These ap-
approaches aspire to an ideal better than the statutory approach. It would also seem that in all arenas, if educators want to be considered as “professionals”, they must take charge of this element – the code of ethics – and draft it to this higher ideal. An ideal that focuses upon service to students, parents and community, rather than the statutory language as previously exhibited. Statutory language tends to have the net effect of de-professionalizing the role and responsibilities of teachers by focusing upon punitive measures rather than sets of principles and ideals to which educators are motivated to aspire. From these observations, it would seem a reasonable conclusion that “codes of conduct” does not equate to “codes of ethics”. This misapplication of terms is common, at least in the US, and it is not a matter of simple semantics. Codes of conduct can be applied to any trade or vocation. Codes of ethics in comparison commonly hold the element of a “sacred trust” as mentioned in the Southern California language. Failure to make that distinction contributes to the argument of those who would relegate the role of teacher to that of “technicist”.

One of the few resources found in the form of a publication which addresses ethics and professionalism is the book, Professionalism and Ethics in Teaching, by David Carr. Even Carr's book addresses these topics from the origin of the medical and technology professions. Carr states, “Beyond health care, other groups have begun to think critically about the kind of service they offer and about the nature of the relationships between provider and recipient.” The editor of Carr’s book speaks to his work as, “viewing the professions as moral projects and teaching and education as genuine professions.” Two previous publications by Carr which are cited are: “Professional education and professional ethics” and “The moral role of the teacher”. Part I, Chapter 1 of the book is titled, “Fundamental assumptions and basic questions, Carr point to three assumptions which his book aims to support: (i) that teaching is a professional activity; (ii) that any professional activity is deeply rooted in ethical concerns and considerations, and (iii) therefore, that teaching is also an enterprise which is deeply rooted in ethical concerns and considerations.

It would seem that Carr would agree that one of the elements of a profession that differentiates it from a trade is the extent and the nature of trust into which the client enters with the practitioner; this is referred to in the Southern California code of ethics as ,”sacred relationships”. This stands against the tendency in our modern age to attempt to apply “scientific solutions to all types of problems. These tend to focus and favor the teacher - learning process and de-emphasize importance and role of the teacher – student as a “sacred” relationship.

Efforts by our colleagues in the Reflective Practices TIG to give stature to and value for reflection in learning and in relationships tend to counter this overemphasis upon scientific methodology. Perhaps it is analogous to the Aristotelian concept of seeking “truth”, rather than goals that we see as “good” or materially beneficial. I would add this distinction to our deliberations with the following. The relationship of the student to the teacher goes far beyond the issue of academic achievement. I would further make the distinction between intellectual growth and academic achievement. In academia we may see no need to mention this; that the statement is self-evident. However, in the classroom, in the trenches of education where the teacher is getting pulled in so many directions, and with the specter of accountability above his or her head no matter where they turn, this important distinction can be lost. The teacher, as professional, is commissioned to give equal weight to the intellectual growth and emotional well-being of his or her students as they are to academic accountability. This helps to distinguish the professional relationship a teacher has with student from that of a technician or “technicist” who works at a Sylvan Learning Center; whose
overriding focus and goal is to move a student ahead “x” number of grades level in student achievement in the shortest amount of time possible. The over emphasis and demands for student achievement which is placed upon teachers has the real, but unintended, consequence of de-professionalizing education, the educator, and undermining the teacher – student relationship. Carr says this, perhaps a bit more succinctly when he say, “... while it should certainly be acknowledged that teachers need technical skills of communication, management and organization for effective classroom practice, such skills are meaningful only within the larger contexts of professional judgment in which evaluative considerations are paramount.”

In summation, the professional educator may well be regarded as “the” professional among professionals. Carr points out in his book with an interesting comparison which supports this conclusion. If a person goes to a doctor for a serious medical problem for their child, or if they go to an attorney for a serious legal issue, they are looking for a solution for their problem and may well overlook personal or character attributes of the doctor or attorney. The doctor or attorney may not have a pleasant personality, she or she may have some significant personality flaws or lifestyle issues; they may be mentally or physically cruel, a liar, a bully or sarcastic. However, if their professional reputation is that he or she are the best at what ever medical procedure need to be completed or what area of law is to be practiced, then people are willing to overlook these character flaws in their selection. They may even entrust the well being of their child to this person. This is seldom, if at all, the case in education. A teacher may have the best academic preparation, may have the best skills to meet the learning needs of their child, and have the best reputation for success as a teacher. However, the parent will be reluctant if not defiant to put their child in the custody of a teacher who exhibits any of these character flaws, even if the occurrence is outside the school in the teacher’s personal life. This indifference to the doctor or to the lawyer and yet not to the teacher, places educators at a higher level of accountability than are other professionals.

Lastly, I would like to quote directly from Carr when he writes, “Thus far we have argued that teaching may be regarded as a professional enterprise, along with traditional professions such a medicine and law, to the extent that it is implicated in the promotion of ethically contestable and morally problematic goals of human flourishing. It is because of that it seems misguided to account for professional educational preparation in the technically reductive terms of competency models. It is not just, as often argued by contemporary ‘particularists’ about the art of teaching, that teaching is a highly context-relative activity which resists articulation in terms of some simple set of mechanical rules, but that, since what is to count as educational method is variously determined by different conceptions of the ends or purposes of education – it is also difficult to talk of fundamental all-purpose strategies in quite the same way required by any pure competence conception of professional training. Unlike many other “professions” in which the array of strategies to address problems are usually well defined, teachers are faced with making judgments and selecting strategies from a much greater array of problems versus possible solutions. Coupled these considerations, the passion and compassion surrounding making selections which will best meet the needs of students truly makes teaching the highest level of professionalism. For the reasons stated in this paper, it is imperative that we impart to students in teacher preparation programs the ethical and professional dimensions of teaching. Educators must move beyond the low level cognitive levels of Bloom’s Taxonomy to the higher level where intellectual growth and emotional satisfaction is found for learners. Teachers at all professional levels must be aware of and equipped to counter
the undo constriction of accountability and the dynamics with which they seem to be faced every day in planning and delivering learning experiences for their students; constrictions which attempt to take away from their professional status and possibly relegate their professional status to that of educational “technicist”.
Early Childhood Education is fundamentally normative. This is partly due to the fact that a set of values and norms is indispensable to an education preparing for a profession dealing with young children. Thus, there are good reasons for being normative. The education as such has its own basic set of norms, and in addition, each of the subjects that together make up the education have their own tradition, with partly separate ideals and norms. This presents a challenge to our teaching. The normative character of the education may also conceal the importance of reflecting upon these significant values and norms. Most often, they are taken for granted. In our teaching we encourage critical perspectives and independent reflection, but we seldom make the fundamental norms a theme for discussion. At the outset, our students are presented with a number of ideals and norms which our education rests on – for example the “correct” pedagogical perspective, the “correct” view on children, learning and so on. But these are not questioned.

My assertion is that this fundamental normative character needs to be expressed, questioned and made the object of discussion to a much larger extent than is the case today. I take as my point of departure the education offered in Norway. Early childhood education is offered at a number of colleges. The curriculum and models of teaching may vary, but all colleges are obliged to conform to the standards and regulations given in “Framework plan for early childhood education” and “Framework plan for kindergartens” which regulates the mandate of kindergartens and the pedagogical activity in kindergartens. Thus, the following probably will pertain to most early childhood educations in Norway, but my assertion is based mainly on my own experiences from Oslo University College. At this college, we are especially concerned with multicultural questions and topics, as the largest groups of inhabitants with minority background live in and around Oslo. There is a sincere wish to attend to central issues regarding multicultural questions and challenges. Still, I will claim that this wish is not sufficiently reflected in our teaching work. We have to examine and make visible the presupposed norms.

Norms and values vary – with time and with culture. If we want to prepare our students for working in a multicultural society, in which different values meet and sometimes cause conflicts and problems, then our education should contribute to the questioning and identifying of its own norms and values, thereby achieving a greater consciousness and awareness among our students as regards norms, which in turn will make a more transparent use of norms possible. In my opinion, this will be an important contribution to the quality of their professional work. To trace, identify and question our own values is a “tool” that will prove useful in relation to cultural conflicts.

In order to create a society in which all people, regardless of ethnic and cultural background receive the same esteem, we all need to intensify the work with our own values. And working along traditional lines such as the categories of minority / majority is not necessarily sufficient for a justification of a value or norm.

A multicultural society actualizes the importance of an awakening to the challenges that pertain to the use of norms in early childhood education. We need to focus
on the fundamental values and norms that our teaching rests on. What norms do we take for granted? Why?

I will start by clarifying the terms “norm”, “value” and their relation to philosophy of science. I will go on to examine what is mentioned about the normative aspect in “Framework plan for early childhood education” and “qualifications framework”. Then I will focus on a central issue in our Early childhood education, that is, view on children, and the value equality, and suggest how an increased awareness of presupposed norms and values may be achieved.

**Norms, values**

We usually differentiate between values and norms: Norms are derived from values. Thus, the values that are presupposed are fundamental to the norms applied. While values might be shared by two persons, they may base their actions on different norms. Norms also play an important part as regards attitudes and considerations, as they form a part of the basis for action. There is a complex connection between values, norms, attitudes and actions. This might, among other things, be expressed by the fact that there is no simple relation between norm, attitude and action: Our ideals are not necessarily realized by our actions. Hence, what is of special interest, is the *applied norm* – resulting from a value. In a multicultural society, values and norms often will be questioned. In a homogenous society, a value may be more easily shared, but still, norms of action may vary. Cultural diversity therefore points to the need for critical studies at both levels. In education normative aspects are expressed as acceptable or preferred opinions and behavior, correct knowledge and correct application of knowledge.

**The understanding of values / norms in education**

Every education has production of knowledge at its core. Thus, the validity of norms must be rooted in philosophy of science, and teachers should be able to explain the connection between knowledge and values/ norms. In education, values are not just given – they are formed by certain views on man and reality and these in turn rest upon certain understandings of science in order to be considered valid and legitimate. I think it is very important to trace values and their norms along these lines for our students, so as to make visible the origin and the fundament of validity of the values and norms we make use of in our education. This raises the question: What is it that makes a value and a norm valid and legitimate?

Torborg A. Leenderts, writing about the nursing profession, points to the influence of positivism in professions of care. The professions were developed in the 1960, deeply influenced by positivistic ideals: Reality is seen as objective, this also applies to human beings. There is an objective reality and knowledge is supposed to be value-free. At the outset, a value-neutral attitude was a request to the researcher only, but then it changed – the social worker should be able to administer objective knowledge, keeping subjective values outside of their own professional work. This view was then criticized, and as a result, this opinion came to be victorious: In the area of social science and subjects dealing with human beings, it is not possible to define something as a fact. The important thing then, is not to separate facts from values, but to be able to differentiate between them and at the same time acknowledge their connection. Leenderts adds that knowledge within the (human fields) always will have a “compo-
nent of belief”: That is, something we do not know, but choose to believe. Often such belief is presented as a fact – which it is not.

I think her observations hold true for other professions of care as well. She goes on to question the validity of knowledge, and rightly points to the fact that behind every understanding of what is regarded as “valid knowledge” you will find value based considerations and choices.

Early childhood education (in Norway, and in most countries, I suppose) is clearly influenced by the positivist critique and post-modern thoughts. At master level, there is a characteristic understanding that there is no single truth, and that every human being has a right to his or her own truth. Correspondingly, the pedagogic ideals take as their point of departure the child as an agent, living in a fragmented world, actively creating his / her own world. But, paradoxically, these perspectives may obscure the normative character of our education. To maintain that there is no single truth, is also a truth. And there is no way we can say that every value might just as well be exchanged for another.

At bachelor level, the students are presented with several fundamental values underlying both curriculum and teaching. Thus, early childhood education has to acknowledge its own normative character, rather than try to act as if post-modern perspectives are sufficient. Naturally, they form a valuable supplement and they contribute to the opening up of important thematic fields, but first of all, it is necessary to recognize, present and illuminate the applied norms.

Norms / values in education

Now, let’s have a look at some of the underlying norms and values of Early Childhood education in Norway. I will start by examining some of the legal documents regulating the education. Due to time limits, I will restrict my examination to some central issues that pertain to norms and values.

In Norway there is a “framework plan” for early childhood education. In addition, there is a framework plan for the content and tasks of kindergartens, and a law for kindergartens.

In the framework plan for education, the normative character is not mentioned or made a topic of discussion. A presentation is given of what the students are supposed to learn, develop and acquaint themselves with, nothing is said about critical reflections as to the fundamental contents of teaching. The modal verb “shall” is frequently used, this is an indication of the normative character of the plan itself, but the fact that norms play a significant part in education is not mentioned. To be sure, the importance of a “diversity of perspectives” is emphasized in relation to the field of pedagogy. Some quotations from the section on pedagogy may illuminate the problematic presentation:

- “... The students shall be able to... evaluate pedagogical work critically, based on the central principles in the framework plan for kindergartens and with special understanding and respect for young children’s cultural and social background”
- “The students... shall be able to reflect upon fundamental questions as to cultural diversity and be able to do pedagogical work in cooperation with parents who have different cultural and social backgrounds
- “... They must be able to assess what is best for the children.”
In these quotations we may observe a distinct wish to include cultural diversity and to put different cultures on an equal footing, while maintaining what is already defined as “central principles”. However, these principles are not made subject to reflection, they seem to be decided once and for all, quite independently of the presence of “cultural diversity”. There is a lack of awareness as regards the possibility of “value clashes”. The situation is depicted as harmonious: The students are supposed to respect and understand all different cultures and their different values, but at the same time, they shall maintain norms and values defined and given in advance in their education. This is perhaps most clearly expressed in the last two quotations: What is the connection between culture and “what is best for children”? How is this to be interpreted? Are the students expected to assess what is best for children from point of view of the child’s cultural background – or is knowledge about “what is best for the child” predefined by the student or the education? This last interpretation seems to be the obvious one. In this way, the text fails to make explicit the normative character of early childhood education. As a consequence, it also fails to include several important perspectives regarding cultural differences.

There may be good reasons for a harmonious presentation of cultural differences in a public document with legal status. Still, in my opinion this is a serious weakness in this text, because this document is fundamental for the shaping of early childhood education. Important problems are left unmentioned, and the normative character is made less visible. This reinforces the problem: Precisely in a multicultural society it is important to explain the basis of norms.

Under the heading “principles of working methods and evaluation approaches” the word “critical” appears: Methods of work shall contribute to “critical reflection concerning historical, cultural and actual aspects relating to kindergarten and the profession”, and the students are supposed to develop a “critical study of different sources”. A critical aspect is thus included and underlined – but it is mainly directed towards the practice of kindergartens and the profession, not towards education. The only possible allusion to a critical focus on education itself is the mention of “critical study of sources” – but most likely it is not to be interpreted in this way.

This lack of focus concerning norms in education is all the more astonishing when we take a look at what each college is instructed to include in their study plans: The framework plan stresses three thematic perspectives: 1) inclusive education, 2) equality and gender and 3) multicultural and international perspectives. All these are closely related to attitudes, values and norms – which also varies between cultures. In particular, this applies to equality and gender. And if the education is to take multicultural perspectives seriously, it is of paramount importance to work consciously with basic values which control/govern the education.

In accordance with the European qualifications framework, a national qualifications framework has been prepared in Norway. This is to be implemented in all educations by the end of 2012. In this text, learning outcome is defined in terms of knowledge, skills and competence. In the following, I will concentrate on bachelor level. As regards knowledge, broad knowledge within a field of study is emphasized, knowledge of research within this field and knowledge about the history, and tradition of a field of study. The word “critical” does not appear in this context at all, and is thus not associated with knowledge! Under skills, the practical use of theoretical knowledge is stressed. Reflection is mentioned - but only with respect to the student’s own practice. Under the heading competence, the main focus is directed towards actions such as planning, carrying out of activities and projects, and the passing on of theory. It is interesting to note the complete absence of any words alluding to attitudes, critical
reflection and norms in this document. In a multicultural society one would think that thorough work with values and norms would be part of this education and that attitudes and consciousness as to values utilized would be recognized as an important part of the learning outcome.

This is even more striking when compared to the Framework plan for the content and tasks of kindergartens. This plan focuses on the pedagogical mandate and activity of kindergartens. The plan emphasizes significant values and makes very clear connections between the tasks and aims and the teacher’s attitudes and actions. The plan is pervaded by the word “shall”, thus, it evidently has a normative character.

These observations show that there is a grave disparity between documents regulating early childhood education and the requirements of professional work. When at school, values and norms are, to a large extent, inherent in their studies, but in professional work these values often will be put to a test in cases in which different values and norms are confronted.

The framework plan for early childhood education points to the necessity of professional consciousness characterized by humility and authority. This consciousness is said to rest on the diversity of historical, social and cultural values. Under the heading “professional ethical competence” the importance of being able to explain and give reasons for one’s own choices and actions is mentioned. Thus, the plan acknowledges the need for practical competence in this field, but still, it seems to overlook the need for critical and thorough work with presupposed values and norms in education itself.

Central values and norms in education

In relation to values and norms, we might say that there are two areas of fundamental importance: The understanding of reality and the understanding of human beings. Our attitude towards other human beings is based on these, and the way in which we understand these two will affect us in almost every way. Most of our actions and choices might be traced back to them, not least in professional work with other people. This means that it is necessary for early childhood education to raise the issue: Who is man? Who is the person we are beholding? What does she or he need to lead a good life? In the wake of this question follows the normative issue: What is it that we think students ought to see when they behold a child? What do we want them to see- and think - and why? The answers to these questions are decisive for all practical and professional work. In my opinion, a thoroughly prepared answer to this is indispensable in a multicultural society, because our answers will vary. Naturally, the definition of a happy childhood or a good life will always vary – but in a multicultural society these variations will be more frequent and often more challenging. An example from Norway may illustrate this: In Norway, old people in need of nursing are usually living in nursing homes. The standards of nursing, medication and living standards in general often are lacking in quality. The patients are put to bed at six o’clock in the evening, the possibility to take a shower is restricted, many patients are over-medicated so that they will not be anxious and demanding, just to mention a few examples.

Thus, few people would say that this group leads a good life. Still, this care system is accepted by most people – there are few protests. On the other hand, persons with another cultural background often react strongly to this attitude towards old people – in many societies this way of caring for old people would be totally unacceptable. However, to treat children in the same way would be unthinkable in Norway. (Imagine leaving wet diapers on for hours, having a wash just once or twice a
week) Underlying this difference in attitude towards young and old is a certain view of man, which may be explained in terms of value: An old patient in a nursing ward is less valued than a young child. In a multicultural society there are good opportunities to challenge such attitudes, if reflections on view of human life are encouraged and different contributions are acknowledged.

“View on children”

Through education, students are expected to extend their knowledge of children (p.13). This is essential in their education, and through this the view of human beings is expressed. Therefore it will be a good starting-point for discussing values.

In the field of pedagogy, the term “view on children” is frequently used – both in the curriculum and in teaching. As “child” and “childhood” are social constructs, it goes without saying that the contents of the terms will vary with place and time. The understanding of “child” is explained in the framework plan for kindergartens in this way: “The framework plan is based on a holistic view of children. This means that the development of children is seen as a dynamic and closely interwoven interaction between their physical and mental circumstances and the environment in which they grow up. Children are social players who themselves contribute to their own and other children’s learning. Interaction with other people is crucial to children’s development and learning….. childhood is a phase of life with an intrinsic value… “staff’s views on children and childhood will affect their interpretations of children’s participation.”

This understanding reflects the actual, dominant pedagogical movement in Norway – and in many other countries, I suppose. It plays a decisive role in our education – and it is presented more or less as self-evident. Still, this is not the only understanding possible. I think this simple, but often overlooked, fact is important – especially in a multicultural context. In all cultures, adults will try to treat children in what they think is the best way, based on certain ideals. To love a child is a common ideal in all cultures. What love implies will vary greatly. In the Norwegian context, the government has presented a “holistic view” as a framework, but still, what is to be done is, to a large extent, left to the individual members of staff to decide. Thus, the individual understanding of what love and care for a child really implies is fundamental. This fact is perhaps the most convincing argument for more conscious work with values in education.

It is also interesting to note two aspects of the expression itself: -The expression “view of children” indicates the importance of categories and differences: Children seem to be contrasted to adults, a distinction seems to be necessary - but why? -The expression may easily be associated with an understanding of the child as an “object”, a person with whom we may have a distanced relationship. But a distanced relationship may be an obstacle to the professional goal of caring for a child. It is necessary to behold every child as a unique human being and he or she is not a “reduced version” of an adult.

A multicultural society provides several alternative approaches to this field. I think it would be useful to make them visible and clear. May be some of them would prove useful in widening and opening up the perspective, so as to include different views, not only the “traditional” ones.

The framework plan clearly states values, but it lacks a clear statement as to view of human life. This may be explained by the need to include different religions and other philosophies of life alike, but the plan would have benefited from a clarity at this point.
Equality - A central value in the framework plan

The Norwegian kindergarten Act very clearly states what are thought to be crucial values: “Care, upbringing and learning in kindergartens shall promote human dignity, equality, intellectual freedom, tolerance, health and an appreciation of sustainable development”. This is elaborated on in the framework plan: “Kindergartens shall promote fundamental values such as a sense of community, care for others and joint responsibility, and shall represent an environment that supports respect for human worth and the right to be different. Human equality, equal opportunity, intellectual freedom and tolerance are important social values that shall provide foundations for the care, upbringing, play and learning in kindergartens.”

“... the equality of the genders shall be reflected in the education provided by kindergartens. They shall bring up children to relate to and create an equal society. Kindergartens shall base their activities on the principle of equality of the sexes.... Charity and solidarity are cornerstones of our culture: tolerance and respect shall be fundamental values for kindergartens…”

Tolerance, respect and equality of the sexes turn out to be among the crucial values. Most people may acknowledge these values, independently of cultural background. But what is meant by these terms? The terms are ambiguous. The ideal of freedom of speech may illustrate this: Where are we to draw the line between what may be defined as freedom of speech and lack of respect and tolerance? Recently, there has been a heated discussion in Norway about the use of hijab: Is the use of hijab an oppressing practice? Should the use of hijab be allowed in different professions? This discussion points to the complex nature of values such as tolerance and respect, and to the fact that even though all persons participating in a debate may refer to the same value, in this case, respect, they end up choosing quite different views and norms, and actions.

The expression “view on children” focuses on children as a homogenous group, contrasted with adults, without reference to gender. In some ways, therefore, it is a simplification, with a tendency to obscure the complex nature of view of human life.

Of course, simplifications sometimes are necessary. But if we by our education want to contribute to a clear and conscious view of human life, I think this expression is not the way to do it. On the contrary, we need to encourage students to immerse themselves in studies of views of human life, by offering an education which includes such perspectives.

In the following, I will comment on the value equality of the sexes, because I think this is one of the most challenging values in a multicultural society. Despite - or may be just because of - its self-evident character, I think this is a value that really needs to be focused, explained, traced and discussed openly. Equality of the sexes is emphasized as a value in the framework plan for kindergartens and in the framework plan for early childhood education alike.

The kindergartens are obliged to base their work on this value, colleges are obliged to focus on human equality in their education. In the framework plan for kindergartens, this value seems to be defined by the following expansion: “boys and girls shall have the same opportunities to be seen and heard, and shall be encouraged to participate jointly in all activities at kindergartens”. I think this is a definition that needs elaboration. It is not sufficient just to mention some actions at this point. This is not a question of partaking in some activities, rather, it concerns a fundamental
view of human life. And we must make this clear to our students. What is equality? What is oppression? What is discrimination? Our cultural and religious background will be decisive for the answers to these questions. In multicultural groups there will not necessarily be one, common understanding.

In the particular field of equality this becomes very clear: If we really wish to realize equality, everyone’s opinion has to count. Then values cannot just be defined beforehand, they need to be discussed and justified openly. This is especially important in a multicultural society.

Making values transparent: A method

I would like to suggest a way of working more consciously with values and norms in early childhood education which may apply to all fields of study. It might be expressed in four terms: 1. identifying a value 2. Tracing a value 3. Discussing a value, 4. Justifying a value.

I think such a practice will make our values more transparent, and thus easier to grasp for students and teachers alike. Of course, values are discussed in our present teaching, but this is not enough, I think. The question of values is a fundamental issue which needs to be rooted in the fundamental construction of early childhood education, including framework plans. The issue cannot be left to the individual teacher.

A challenging and important aspect also emerges very clearly by using this method: In a multicultural group of students we will need to illuminate values from quite different angles, if we are to take our students – and the context in which we are teaching - seriously. Thus, the traditional “western”, European perspective will not be sufficient: In accordance with our students’ traditions, we will have to examine several perspectives. We must be willing to open up a bit more: It is not a matter-of-course that the “Western tradition” always shall be presupposed when it comes to defining values. We need to take other perspectives into consideration as well.

Using equality as an illustration, I will comment on this method in practical teaching.

1. Identifying a value. In order to identify a value, we need to focus on its content in practical action. We have to ask: What does equality imply? Here, the framework plan for kindergartens gives a few guidelines, as we have seen. It implies equal opportunities to be seen and heard, and participation in common activities. Still, it seems clear that equality includes much more. The context is too narrow. The value of equality affects almost all actions between people. It concerns each individual’s worth, human dignity, identity and role in a social group. In a professional context in a multicultural society, we also have to raise the question of the subjective experience of equality. In addition, the specific value of equality of the sexes relates to inherent patterns of patriarchy and fundamental political and social issues. Besides, in a multicultural context, understandings of the nature of equality will vary. This makes clear the complexity of the value. I think this complexity should be attended to in our teaching to a greater extent than is the case today.

2. Tracing a value. In order to increase the students’ awareness of values, it is of vital importance to be able to trace values. What are their origins? Where do they come from? What is their historical development – and how may we understand this development? For such a work, history of ideas is an indispensable tool. However, in Norway history of ideas is not a part of Early Childhood education. I have wondered about this ever since I started teaching. (It will be interesting to know what it is like in other countries – I know too little about that, and hope you can inform me) In a multi-
cultural society where different values and norms constantly meet, I think it is crucial to have knowledge about different strands and lines of development. Then one will be able to sort out different historical traditions, based on a historical understanding. As we all know, there is a strong link between the past and the future. Independently of our own cultural background, we all need to know and recognize our past in order to create a future that aims to realize the value of equality – or any value, for that matter. I think it is a paradox that the professional group who are among the first to meet the new generation, do not have history of ideas as part of their education.

The Norwegian kindergartens act states: "Kindergartens shall assist in giving the children an upbringing that accords with Christian values". This is further elaborated in the framework plan. Thus, a framework is provided for interpreting and tracing the values mentioned. Still, our teaching utilizes this to a very moderate extent. It may be partly due to the fact that this law, making explicit mention of Christian religion, has been much debated in the Norwegian context. However, there is reason to keep this in mind if we wish to increase students’ awareness of values. This statement gives a clue to the understanding of equality in Kindergartens: it is based on Christian traditions and conceptions. This in fact implies the use of a theological anthropology – which has at its core the belief that both man and woman alike are created by God, in the likeness of God, and that every human being therefore is precious and unique. In addition, we have to make visible other religious traditions for the concept of equality, and we also have to show our students other historical sources, such as classical – and later – philosophy, historical events and political ideas (such as the work of Plato, Immanuel Kant, various civil rights declarations, The UN declaration of human rights) – which have contributed to the development of the value equality. One might think that students are familiar with these sources, but in Norway, this is often not the case.

3. Discussing a value / norms. Having identified and traced a value, time has come to consider it, and make room for discussion. I think this is the part most often focused in early childhood education. There is much discussion and reflection in our education and teaching. Still, the students often are in want of a solid basis for their reflections, as their syllabus in most cases consists of recent books describing and discussing “up today views”, but not (or to a very little degree) taking historical perspectives into consideration. This in turn inevitably influences the discussion.

In case of the value equality of sexes, several questions need to be posed: Is equality a value defined once and for all? Or is it possible that this value might differ with culture and place? What do we mean by equal opportunities? What degree of significance should be attached to the individual’s own experience? What aspects of the value are to be focused? What norms are most suitable for realizing this value? Especially this last question will be of significance in a professional context.

One could of course maintain that since this is a binding value for all preschool teachers, there is no reason to discuss it. In my opinion, it is every reason to discuss it – just because it is a binding value, since what we understand by it will vary with our background. I think that a value can only be realized by making it a common value – and then different views must be taken into consideration.

4. Justification of a value. How may values be justified? Instead of just presenting some values as “indisputable” in education, I think we should provide students with tools for examining the fundament of our values - which are expressed in pedagogical work and in education alike. In this way, we might be able to contribute to an important discussion: What values are to be maintained at all costs – and are there values that we ought to change – or relinquish?
Equality (between the sexes) rests upon a certain philosophy of life, a certain understanding of human life, truth and knowledge. It seeks to contradict patriarchy, it acknowledges differences between men and women but at the same time tries to overcome differences (sex is not a valid category for value statements), it maintains every individual’s unique position in the world and the rights of every person, independently of sex (and other status).

In addition, we also have to make visible the ongoing structures of power as far as definitions are concerned: Values and norms are part of a dynamic movement, definitions will vary according to the persons/milieus that are allowed to decide them. Michel Foucault’s work will be very useful in this respect. His work discloses many aspects of the nature of power and supplies students with important theories of power. In Norway his work is introduced at master level, but I think his theories ought to be presented to students already in their first year of study, at bachelor level.

I would also like to suggest the introduction of philosophy of science at this stage. This would provide students with necessary knowledge for critical approaches to values and norms – both in their education and in their profession. A course in philosophy of science would also enable them to see connections between views of human life, understanding of knowledge and truth more clearly than what is the case today. Many master students have commented upon the lack of this topic in their bachelor studies: They would have liked to get acquainted with philosophy of science at an earlier stage, as it supplies valuable theoretical insights.

In my opinion, philosophy of science is an indispensable field of study as regards values and norms. It clarifies different perspectives as regards application, it explains methods of justification of values and it makes visible several important limits in scientific work. It reflects what could be called a “western tradition”, however, by reason of its critical nature it offers possibilities for multicultural approaches. This method may be utilized also to examine critically/study/take a closer look/the normative character of the education itself.

When we are able to make the education’s fundamental values and norms the object of study, they will hopefully become more transparent – and thereby easier to grasp. Perhaps we will be able to include more varied norms, thus creating an equal group, consisting of students with different cultural backgrounds, experiencing that their own cultural perspectives are included and paid attention to.

I think this will increase the quality of later professional work, because this method contributes to a deeper understanding of other persons’ views, a more conscious approach to conflicts and dilemmas, less influence of prejudice, better ability to identify what the actual problem or conflict is about, and an increased capability to arrive at acceptable solutions.
4. Entrepreneurial Education: The Teacher Role in the Stimulation of an Entrepreneurial Attitude on Bachelor Level Students

Inês Pinho and Carla Serrão
Escola Superior de Educação, Instituto Politécnico do Porto
Porto, Portugal

Introduction

In the last decades, we are witnessing, in more developed contemporary societies, the phenomena of internationalization, globalization and the development of new technologies which brings changes in the consumption behaviour and, therefore, in organizations management. Portugal, like other countries, is facing this reality and is trying to adapt to it, to ensure sustainable growth and welfare to its population.

Commonly, this idea is associated to business organizations with/without profits. However, the global scale above mentioned can no longer focus on these areas. Therefore, also education organizations should prepare and act on these new challenges. To this end, they must adopt an entrepreneurial posture.

According to Ferreira et al. (2008) the entrepreneurial attitude is what leads to expansion, by taking advantage of a proper climate created by periods of change, leading to induce favourable behaviours to innovation and improvements in processes, products and services.

The benefits of entrepreneurship, along with the contribution to increase production and wealth, also contribute to improve the supply, increase individual accomplishment choices and cause self-employment, turning possible the access to better income levels (Ferreira et al., 2008).

According to GEM reports (Global Entrepreneurship Monitor, Bosma, et al, in www.gemconsortium.org, consulted in 19.09.09), and in what refers to the Portuguese context, there is four main weaknesses on the entrepreneurial activity:

- The obstacles in the access to capital and the unfamiliarity of the existing ways of financing;
- The inconsistency of the politics, national development strategies and government support programs;
- The scarce offers in teaching entrepreneurial education as school subject;
- and, finally, the insufficient development of the commercial and professional services (that is, at the level of the consultancy, exists a lack in support services to micro and small organizations, legal and accountancy advisor, university and research institutes, as well as an entrepreneurship institute).

To these four fragilities it should be added the Portuguese cultural factor, to be precise, the aversion to the risk or the acceptance of the change/failure possibility.

Thus being and having as pillar these fragilities, it is vital that higher education institutions shall have an active intervention in what refers to the preparation of its students, to enhance the entrepreneurial activity in these future professionals.

For such, it is considered the creation of an educative offer, integrated in the study plans of the different courses of 1st cycle, an optional curricular unit, with a total of 45 hours towards the development of abilities:
For analysis of the contextual, strategical and political reality;
- For the creation of self-employment;
- Reflexives and behavioural towards intrapreneurship.

Entrepreneurship, entrepreneur and intrapreneur concepts

Several authors have, throughout the last decades, attempted to define in a more rigorous form, the entrepreneurship concept. Thus, and to understand the evolution of this concept, some attempts for its definition are referred below:

Joseph Schumpeter (1942) integrates the designation of corporative entrepreneurship. For him, entrepreneurship consists on the creation of new businesses, but equally on the innovation of those already existing. In this way, it is possible to speak about intrapreneurship.

Arthur H. Cole (1946) defines the concept as the activity that is proposed to an individual or group that takes the initiative to create or to keep a business, oriented towards profit or another measure of success, interacting with the circumstances of the internal and external environment. He defends that entrepreneurship is in the origin of the characteristics of entrepreneur, more precisely, in its political, religious and philosophical beliefs, in its psychological needs as initiative, ambition and spirit of adventure. Equally, this phenomenon is only possible when facing competitive markets and never monopolists markets. Cole (1946) underlines yet that for an activity to be classified as entrepreneurial there must exist three factors: innovation, management and adaptation to the external conditions.

Kizner (1973) refers that entrepreneurship consists in creating a balance, finding a clear and positive position in an unstable environment, that is, consists in the identification of new opportunities in uncertain environments.

Smilor and Gill (1986) defend that to the activity subject to entrepreneurship become a success, it’s necessary the presence of four factors: 1) Talent (People); 2) Technology (Ideas); 3) Capital (Human resources); e 4) Know-how (Knowledge).

Gartner (1989) points that entrepreneurship owes to its responsible - the entrepreneur. Thus being, he creates organizations and leads them to success. Therefore, it’s not the psychological characteristics of the individual that influence its performance, but the act to intervene in the management of the organization and its involvement with the corporative environment.

In the scope of the IAPMEI Report (2008, p. 2) entrepreneurship “constitutes the dynamics of identification and economic exploitation of opportunities, essential for the promotion of qualified economic growth (there’s no economic growth without entrepreneurial dynamics). Independently of the promotional strategies of dynamic competitiveness factors - innovation, qualification, design, marketing -, crucial will be the promotion of who forthcome it, that is, the entrepreneurs, reason for which the promotion of the conditions that ease the implementation of those strategies, on one hand, and of the enterprise spirit, on the other hand, become essential”.

Finally, Dornelas (2008, p. 21) points this process as the one that involves all the functions, activities and actions associated to an organization creation. As follows, entrepreneurship “involves the process of creating something new, of value… requires devotion, time commitment and effort to make the organization grow… deliberate risks and critical decisions are taken”.

As for the entrepreneur, some theoreticians of the Harvard Business School (e.g., Smith & Miner, 1983) had proven that it has an association between the fact of the individual becoming an entrepreneur and having worked previously in organiza-
tions where the models that appeal to the bureaucratic structures were a constant. Such conclusion leads to identify two types of entrepreneurs:

- Entrepreneurs-artificers: those that by mastering the art create their proper job. These individuals characterize themselves for having low levels of education and professional formation, low level of social involvement and knowledge, incompetence to deal with environment questions and a limited capacity for the management of time;

- Entrepreneur-opportunists: those that present good levels of education and formation, high capacity concerning social relations, external environment questions and management of the future. Likewise, they are what they desire: to have feedback of their actions, to innovate, to assume moderate risks and plan the future.

The results achieved by these authors at the level of the strategic management of organizations, developed by each one of those entrepreneurs, were that, while in the first case a more rigid organization would be created, in the second more flexible organizations would be created, with more capacity for adapt to the change. It has been concluded that although the entrepreneur works in a bureaucratic organization, if he own characteristics that evidence the entrepreneur-opportunist, this will represent a contribute to the organizational growth.

Consequently, this presents, in his personal characteristics, the capacity for adapt to the change, as well as a bigger motivation for the introduction of changes. In contrast, the entrepreneur-artificer, shows to be more adapted to a central system with bureaucratic structures, shows more resistance to the implementation of changes, as well as tends to evidence low motivation levels.

For Ferreira et al. (2009, p. 8), the entrepreneur “is the one that pursues opportunities, independently of the resources that he has and controls, and that can constitute his own organization.” In this way, the entrepreneur is not only the one that “limits to own a business, nor to plan how to organize it”. He is “the one that really work, that takes forward the defined project, takes risks and harvest the benefits”.

Dornelas (2007) traces the profile of the entrepreneur, considering the following characteristics: he is visionary, knows how to take decisions, transforms an abstract idea into something concrete, knows how to explore the maximum of the opportunities, is determined, dynamic, dedicated, optimistic and passionate by his work, is independent and constructs his own future, is a leader and work with teams, knows how to create a network, is organized, plans each management step, assumes calculated risks and represents value for the society.

To understand the concept of entrepreneur, Ferreira et al. (2009) suggest analysing it in three plans:

a) In the psychological plan, to analyse its entrepreneurial activity on the basis of what they are (visionary, self-confident, optimistic, tolerant to failure and to ambiguity, creative and self-controlled);

b) In the contextual plan, to understand the context that surrounds him (family, education, social basis, religion, culture, job an life experience);

c) In the behavioural plan, to analyse how entrepreneurs act and take decisions (guided for defined purposes, present a great capacity for work and determination, among others).

Phases of the entrepreneurial process
Understood the entrepreneur and entrepreneurship concepts, what follows is to point the steps towards the development of the entrepreneurial process. According GEM (2008), the entrepreneurship is a process composed by several phases. The first phase is related with the level of knowledge and knowing of an entrepreneurial potential. The second phase refers to the conception of the idea of the entrepreneurial project. The third phase is the development of the steps towards the creation of the organization. The fourth phase is the after-implementation of the organization and its persistence in the market. It’s important to stress out that for the Global Entrepreneurship Monitor, an organization is persistent if it remains in the market for a period equal or larger than three and a half years.

Dornelas (2008) enumerates the following phases of the entrepreneurial process, identifying the aspects underlying:

1st phase: to identify and to evaluate the opportunity. Among others aspects, this phase involve:
- The creation and coverage of the opportunity;
- The distinction between perceived values/real values;
- The identification of risks and possible returns;
- The duality opportunity versus personal abilities and goals; and
- The evaluation of the competitors’ situation.

2nd phase: to develop the business plan, considering the following points:
- Brief presentation of project/organization;
- Stratgical orientation of the organization, namely at the level of the market analysis and evolution, market researches and marketing plan proposal;
- Economic-financial study of the project.

3rd phase: to determine and to seize the necessary resources. In this phase, it’s convenient to make a distinction between financial, material, technique, marketing relative and human resources. 4th phase: to manage the organization, appealing to strategical management methodologies.

The proposals of Ferreira et al. (2009) are similar to those Dornelas (2008) refers, with the exception that the first author systemizes the phases of the entrepreneurial process in the following way:

- 1st Preparation - that consists in the identification and evaluation of the opportunity (to identify sources of ideas, to collect business ideas, to create business opportunities), in the evaluation of the capacities and motivation towards the entrepreneurship (to identify entrepreneurial abilities and motivation) and in the determination of the necessary resources (to identify expected income sources, product costs and reserves);
- 2nd Creation of the business plan - that consists:
  - In the development of the business plan (to define the business concept, to gather background information, to plan and to know the market);
  - In the achievement of the necessary resources (to establish relations and to decide the financing sources);
  - To create and to start the business (to select the legal form, to create the organization, to contract accountancy services and employees and to enter into the market);
- 3rd Management – that consists in placing the business to work (to organize the departments and functions of management); in managing the operations (to develop all the cultural activity having as basis the target public, in proactive
and strategical behaviours) and managing the organization growth (to understand the change and turning points and to create strategical answers); and

- 4th Follow-up - that consists in the management of the expansion (namely the establishment of partnerships, acquisitions or to internationalize); to spread the business (to spread it to its target public, bearing a constant evaluation); to finish the business (to evaluate the business, to find reasons for its sales) and to restart (to apply methodologies of crisis management; to decree bankruptcy; to initiate liquidation process; to close the business and to restart).

**Education and formation in entrepreneurship**

According to Filion (1994) and Gasse (1985), the best age to acquire knowledge in matters related to entrepreneurship, and thus start to have a positive position, is during childhood or adolescence. Peterman and Kennedy (2003) try to prove these ideas, carrying out a research with a sample of 200 students of different ages. These authors had concluded that this kind of formation in younger ages is important for students to define their professional career, not considering their professional life at long period. However, the importance given to entrepreneurship education has as purpose: to allow young people to acquire appropriate tools and to simplify the contact with institutions they will need to contact in the future, if they decided to go that way.

Shapero (1975, 1985), in turn, defines as antecedent of the intention accomplish entrepreneurship: the perception of the desire, the perception of the capacity and the propensity to accomplishment. The same author suggests that a person’s attitude, when determined to be entrepreneurial, is influenced by its priorities, work experience and existence of models.

Commonly, success entrepreneurs are individuals with high academic qualifications. However, and as Hisrich defends (2008), to have high qualifications does not mean by itself, that the formal education system enhances the entrepreneurial capacity. In fact and in the perspective of this author, the school system does not develop such abilities. Thus being, he states that entrepreneurship education must be integrated in the regular education system and must represent an interactive apprenticeship, based on experience and entrepreneurial models, where should exist networks connecting businesses and the community.

Important to enhance is also that the entrepreneurship education can not have success if it doesn’t answer to some of these processes, namely, gathering product opportunity offers, list of necessary resources and creation of a risk business.

How or which pedagogical methods will increase the capacity of the individuals to identify opportunities and business?

Some researchers in this area (DeTienne and Chandler, 2004) defend that the discoveries at the level of the entrepreneurship are a result of a systematic research and 4 methods to identify business opportunities:

1- Active search - the entrepreneurs are economic agents who consider temporary changes as a way to get some type of advantage. As follows, they appeal to management methodologies as: marketing research, competitive analysis and strategical planning. According to this model, the entrepreneur rents its business idea to those organizations with higher capacities of research, allowing a more rational work;

2- Passive research and random discovery - the biggest difference between the two perspectives is the fact that passive research demands individuals to operate in a conscientious state of sensitivity towards the surrounding environment,
where random discoveries stipulate the awareness to business opportunities. In this procedure, creativity represents a basic factor towards the discovery process;

3- Opportunity while creation - Through imagination, the individual can create an opportunity from scratch. Thus being, the opportunity exists in the mind of the individual and emerges according to his will. The entrepreneur introduces not only the new product/service, as well creates or change market conditions, in which this product or service is sold;

4- Creativity and identification of the opportunity - These two conditions depend on the existence of a set of abilities: security (ability to pay attention and to preserve new ideas); expansion (acquisition of new abilities and new knowledge to increase the available condition to compete); exposition (capacity of to open to multiple stimulators); challenge (capacity of to grasp new challenges through wrong experiences learning).

Man, Lau and Chan (2002) add that, during the formation in entrepreneurship, the individual needs to acquire, beyond abilities for the recognition and development of market opportunities, other abilities like capacity to hold good relationship and build alliances, as well as conceptual, organizational, strategical and commitment abilities.

The current education system provides a formation, even the one designated by entrepreneurship education in classroom, more oriented to supply a formal and traditional knowledge of the steps to take during the entrepreneurial process. Instead, it should provide an active and practical formation. Therefore, according to Benson Honig (2004), it is practically inexistent literature concerning entrepreneurship teaching methods.

The business plan should be the first step to teach within specific entrepreneurship processes. It must focus on ideas, opposing them to actions. In this way, the contemporary model of entrepreneurship education, in which the business plan is at the core, must observe, according to Benson Honig (2004:267), the following aspects:

- Method: solutions based on a convergent thought;
- Results: analytical tools, namely, personal properties: self-confidence; motivation; tolerance to the risk; cognitive factors
  1: leadership and management tools; cognitive factors
  2: tools for organization development and cognitive factors
  3: evaluation tools
- Steps to take during this formation: 1<sup>st</sup> step - introduction how to write an entrepreneurial business plan; 2<sup>nd</sup> step – the entrepreneur completes the business plan; 3<sup>rd</sup> step - the entrepreneur creates a new organization (company, NGO, IPSS, non-profit organization, association, foundation, among others);
- Simulation of the professional activity, observing 4 aspects: communicational, self-control, human resources and technique abilities;
- Planning contingencial instructions to be supplied for each module teaches in the START model: marketing, production, development, human and financial resources;
- Equally, it is necessary to teach work methodologies to entrepreneurs and intrapreneurs.

In summary, the model must help students to learn how to be tolerant to the risk, to make mistakes and to develop some management abilities, important to motivate and to take the idea of business through unknown territory. As for the steps to take while
implementing this model, a first question should be answered: the project is valid? If not, it should be immediately abandoned. If yes, two alternative ways can be followed:

- **Path 1** - A module is chosen, for example, the marketing module and the study of the market of project is started. After this analysis, we should ask ourselves if the project is still viable. If not, we should abandon the idea. It is viable with adaptations? Then they are introduced and it’s make a new evaluation of the project. If not, it should be abandoned. If yes, we should go on to the next module and so on successively, till the conclusion and final evaluation of the project.

- **Path 2** - A module is chosen and a by-pass is made. The project fulfils all the steps of this module, than automatically is approved. Otherwise, it must be immediately abandoned. Finished the first module, the same methodology is used for the following modules till the conclusion and final evaluation of the project.

Although there are already some studies about entrepreneurship, Baron and Shane (2005) defend that the true knowledge on these subjects comes from the application of a scientific method consisting on the following phases: systematic observation, experimentation and reflection. The systematic observation involves a careful measurement of the interest variables, in a way to determine if they are, somehow, correlated and if the forecast of some can be made from behaviours of the others. The experimentation involves a direct intervention, that is, the systematic change of a variable is occasional, in a way to determine if these provoke changes in one or more variables.

With reference to the creation of new organizations and following success its implementation, it depends, according to Baron and Shane (2005), on the entrepreneur considering several factors. In the first place, making market segmentation that allows identifying market niches and new investment opportunities. Then, it is important to invest in new markets because the growth tax of these is superior to those already in a mature phase. Thirdly, to promote industries of intensive capital is more hostile than in new organizations, in the way that it becomes more expensive. Finally, a micro or small company should be organized, instead of a large company since the financial risks and costs are proportional to its dimension.

Equally, it must observe the legislation imposed by the State and it must be created a human resources team, with complementary abilities and attributes. Relatively to financial questions, it is important to elaborate a business plan that explains the vision of the entrepreneur and how it will be converted into a rentable activity. All the investors/financers (patron, sponsors, state, banks) will only support the cultural business, by presenting this business plan and the entrepreneur, while organizing it, will be also reflecting in its intentions and purposes to achieve.

**Optional offer of the entrepreneurship education curricular unit**

Based on the information gathered with researches, studies, opinions from different authors, in particular, from Man and al. (2002) ideas and from the phased perspective of Ferreira (2009), it is vital to create a Curricular Unit called Entrepreneurship Education, as option, in order to enhance in students entrepreneurship competences.

As follows, and as mention in the introduction, this C.U. should have a total of 45h, integrating two scientific areas- Management and Psychology. Referring competences, it is intended that this C.U. develop in students abilities such as:
- Recognition and development of market opportunities;
- Development of good relationship and construction of alliances;
- Conceptual, organizational, strategical and commitment;
- Adaptation to change;
- Creativity and
- Innovation.

As for its contents:

1 - Business plan
1.1 - Basic idea of the new product or service. Attractivity of the new product or service and relation with its demands. Marketing methods.
1.2 - Degrees of experience and knowledge to develop the business idea and to implement it.
1.3 - Budget. Type of financing. Return of the investment for the entrepreneurs and the financers.

2 - Drawing
2.1 - Antecedents, mission and purposes – here should be described the idea and the coherent state of the business;
2.2 - Marketing – here should be described the market, the cultural relevancy of the good and service to offer, information on the prices to practise, the place where the activities will take place and how they will be promoted;
2.3 - Analysis of the competition – give information about direct and indirect competition;
2.4 - Pre-production, production, Implementation and control of cultural goods and services – here should be created a working plan, considering the Work Decomposition Structure (EDT) and the Product Decomposition Structure (EDP). Here, the different moments of planning, implementation and control are evident;
2.5 - Elaboration of the project chronogram – concerns the models of the PERT and GANTT nets to elaborate the chronogram. It contains the periods in which the tasks and sub-tasks shall be handle;
2.6 - Management of the project at the level of the Human, Commercial, Technique and Financial Resources – here should be described the experience, competence and abilities of the team work at the different management components (production, marketing, human and financial resources);
2.7 - Study of the risk factors and presentation of the cultural project budget - section that must contain an analysis and discussion of the different risks that the cultural project involves and a proposal of solutions to solve them;

3 - Interpersonal motivation and relations:
3.1 - Intrinsic and extrinsical motivation
3.2 – Self-effectiveness
3.3 - Leadership
3.4 – Creativity

References


Kirzner, I. (1973) *Entrepreneurship*. 


III Internationalization
5. The Effect of Study abroad on the Development of Student Teachers: A Literature Study

Astrid van Schoonacker-de Groot
University of Applied Sciences Leiden
Leiden, The Netherlands

Abstract

The value of study abroad is based on the idea that it contributes to academic learning, cultural awareness and international understanding. Can teacher educators rely on these supposed effects of study abroad? This literature review brings together answers on the questions ‘How is internationalisation embedded in higher education in The Netherlands?’, ‘How do student teachers learn?’ and ‘Which effects of study abroad within teacher education are mentioned in the literature?’. The review shows that the effects of study abroad in teacher education don’t automatically result in a contribution on cultural awareness and international understanding. It depends on the orientation to learning of the student teacher and on the student teacher’s ability to regulate his own learning. It also depends on how the study abroad activity is imbedded in the study program before and after the stay abroad.

Keywords: Internationalisation; Study abroad; Higher Education; Teacher Education

Introduction

“A new world opened up to Mohammad. His travels lasted long. He slept in karavanserais and met traders from the Persian realm, from Egypt, from Ethiopia and from the Byzantine realm. He became acquainted with Zarathoestra of the Persians, Jesus of the Christians, Moses of the Jews and the Pharaohs of the Egyptians. (...) and he had many discussions during the long nights with the traders. He saw the differences. He reflected.”

The prophet Mohammed was a young, non-educated man who learned from his travels. Do young student teachers also learn while they travel and study abroad? Or, to rephrase this question; What is the effect of study abroad on the personal and professional development of student teachers? In order to find answers on this question I started a literature study with two questions: (1) How do student teachers learn? And (2) which effects of study abroad within teacher education are mentioned in the literature? This article is a reflection of this literature study.

Search strategies. In order to find answers on my first question I searched with the combination of the words ‘student teaching’ and ‘learning and development’ the databases Academic Search Premier, ERIC, Education Research Complete, Teacher Reference Center and Google Scholar of relevant articles published in or after 1990. Besides that I searched the Dutch Journal ‘Velon. Tijdschrift voor Lerarenopleiders’ from 2001 till 2009 of relevant articles. In order to find answers on the second ques-

---

tion I searched the databases Academic Search Premier, ERIC, Education Research Complete, Teacher Reference Centre and Google Scholar of relevant articles published after in or after 1990 with the combination of the words ‘study abroad teacher education’ and without the words ‘short’, ‘language’ and ‘long distance’. Besides that I conducted a workshop at one of the seminars of the Theme Interested Group ‘Internationalisation’ which took place at the Annual conference of the European Teacher Education Network (ETEN) in Izmir, Turkey at the 24th of April 2009 to learn from the participants of this Theme Interested Group.

How do student teachers learn?

The key rationale of internationalisation in teacher education is to equip the students with knowledge, skills and attitude which will make them able to bring the rapid changing and globalized world into their future classroom in order to prepare their future students in a proper manner to be part of that world. Does study abroad contribute to the development of the knowledge, skills and attitude student teachers will need for that? In order to answer that question we first need an answer on the question ‘How do student teachers learn?’

Two types of regulation within learning

Students in higher education learn in many different ways. This is what research on student learning has shown. Learning is not the direct result of a form of instruction, but is mediated by the learners’ personal interpretation of that instruction and learning is a matter of increasingly informed participation in a discourse community (Oosterheert, 2001, Edwards, 2001). Oosterheert distinguishes in her thesis about how student teachers learn two types of regulation within learning: Dynamic self-regulation and Active regulation. ‘Dynamic self-regulation is described as the capacity to delegate attention to multiple subsystems of our brain’ and ‘Active regulation is the explicit focus of the learner on specific details of this (emerging) understanding.’ (Oosterheert, 2001, p. 14) Oosterheert gives the example of a student who may spontaneously recognise a new phenomenon in her classroom, e.g., fear of failure, which was (conceptually) introduced at an university meeting, although no deliberate attention had been given to it since, neither by this student teacher or by anyone else. It is only then that the student teacher experiences understanding. This is an example of ‘dynamic self-regulation’. When this student teacher in this example wouldn’t have recognised this fear of failure, but it would have been a part of a subject matter for an exam, then it would have been an example of ‘active regulation’.

Dynamic self-regulation asks for dynamic sources and generates new understanding in learning. ‘(…) for dynamic sources to become effectively involved in the process, interest is presumed to be a prerequisite.’ (Oosterheert, 2001, p. 16). In addition, the more prior knowledge a learner has, the more there is, potentially, to be re-conceptualised, and the more likely it is that new information arouses the learners’ interest.’ (Oosterheert, 2001, p. 16).

Concerns and beliefs

There is certain cohesion between prior knowledge and the concepts of ‘concerns’ (Gommers, 2005) and ‘beliefs’ (Korthagen, 2004). The concerns of students are the dominant areas of special interest. (Gommers, 2005). The origin of special interest
lays in the prior knowledge, which a student has. Gommers describes four types of concerns. The first type of concerns are the pre-teaching concerns; students don’t have experience on teaching yet so their concerns aren’t related to the profession of being a teacher. The second type of concerns is the survival concerns; students are having their first teaching experiences and are occupied by surviving in the classroom. The third type of concerns is the task concerns; students get interested by how they have to teach. And the fourth and last type of concerns are the ‘how do students learn’ concerns; students become more aware that the way their students learn and develop is the main concern of teaching. According to Korthagen, the (student) teacher’s competencies are also determined by his beliefs. The student teachers’ beliefs about the world and about themselves are shaped and inhibited by their upbringing. ‘A student who has grown up in a closed religious environment, can have a hard time when confronted with completely different views of the world, and this may start to undermine his or her self-concept.’ (Korthagen, 2004, p. 81). An effective way of changing student teachers’ beliefs is according to Oosterheert ‘to focus more on changing students’ mental models of learning to teach and their associated learning habits. It seems that many students need –differential- guidance towards orientations in which reconceptualisation are more likely to occur.’ (Oosterheert, 2001, p. 50). Korthagen gives concerning this context the example that the views of a student teacher may change when starting teaching at a different school or when he is helped to develop new behaviour by means of modelling (Korthagen, 2004).

It depends thus from which concerns a student has on his mind or which beliefs he has what he could learn through dynamic self-regulation. Could learn, because according to Oosterheert, most student teachers rely predominantly on active sources of regulation instead of dynamic sources. ‘Active sources are used to find solutions and suggestions to improve practice, not to develop their understandig of teaching and learning. It is likely that the existing beliefs of these students remain unaltered’. (Oosterheert, 2001, p. 17). Students who have just passed the stage in which they have their ‘survival concerns’ may not process information which ‘disturbs (the relief about) the balance they just carefully built up: new information should not yet implication changes in their teaching behaviour. In this respect, reproductive learning (predominant use of external and active internal sources) is less ‘risky’ than constructive learning (…). In reproductive learning, facts and ideas remain unconnected to each other and to the self, while constructive learning implies the ‘risk’ of reconceptualisation.’ (Oosterheert, 2001, p. 18). Without the involvement of dynamic internal sources, knowledge construction and reconceptualisation do not occur. And without reconceptualisation, the frame of reference of the student teacher based on prior knowledge remains the same and in the worst case, the student will stay an ‘imitator’ of his own teachers (Reis, 2008). A study into the influence of positive and negative role models, brought to light ‘clear examples of the extent to which student teachers were influenced by certain teachers in their own past. Those examples illustrate how past role models shape the professional self-image of teachers.’ (Korthagen, 2004, p. 81).

Creating knowledge

Kwakman describes four ways of creating knowledge; (1) Creating knowledge by adopting implicit knowledge from someone else. Kwakman calls this ‘socialization’ and this will take place by observation, exchange experiences or imitation. (2) Making implicit knowledge explicit. Kwakman calls this ‘externalization’ and this can occur
e.g. when a student teacher and a teacher talk about a lesson, which has been observed by the student teacher. (3) Creating new explicit knowledge by matching explicit knowledge from several sources. Kwakman calls this ‘matching’. (4) Internalizing the explicit knowledge, which will lead to new implicit knowledge. This new implicit knowledge will then be a part of the professional performance of the (student) teacher. (Kwakman, 2004).

When we compare the theory of Kwakman about creating knowledge and the theory of Oosterheert about new understanding in learning, we can conclude that Kwakman’s ‘matching’ is Oosterheert’s ‘dynamic self-regulation’. Without ‘matching’ the student teacher won’t internalize the explicit knowledge into new implicit knowledge and without ‘dynamic self-regulation’ knowledge construction and reconceptualisation do not occur. Kwakman also emphasises that it is important to have different kind of sources for creating knowledge; individuals and books, methodologies etc. In Oosterheert’s phrase: ‘They [student teachers] profit most from their teaching experience, when they use their own internal sources for the purpose of understanding, as well as other external sources to discover what more there is to be perceived and done in teaching and learning’. (Oosterheert, 2001, p. 22).

**Orientations to learning to teach**

Oosterheert distinguishes in her thesis about how student teachers learn five orientations to learning to teach:

A. **‘Survival’**: These student teachers are not directed to improving their performance or to developing their frame of reference on teaching and learning. External information is appreciated when it provides a solution to an already experienced severe problem. They define problems as external: mainly as a problem of their pupils. Emotional experiences are avoided.

B. **Closed Reproduction**: These student teachers are self-regulative in the improvement of their performance towards the realisation of their ‘ideal self as a teacher’. They are not directed to understanding the meaning behind actions and events. External information is appreciated when it solves an already experienced problem and when it feels good immediately. They define a problem as something that has still to be effectuated. They avoid emotional experiences or have secondary emotions, which often function as impediments to learning.

C. **Open Reproduction**: These student teachers rely heavily on external regulation for the improvement of their performance towards the development of a personal teaching style. They are not directed to understanding the meaning behind actions and events. They define problems as problems of performance. Secondary emotions are part of their process and stimulus to learn.

D. **Closed Meaning**: These student teachers are self-regulative in the improvement of their performance, and depend on external regulation for the development of their frame of reference on teaching and learning. They define problems as problems of performance. They recognise conceptual information that is connected to their implicit problems of understanding. Secondary emotions are part of their process and stimulus to learn.

E. **Open Meaning**: These student teachers are highly self-regulative in their learning. To improve their own effectiveness in promoting pupils’ learning,
they try to improve their understanding of teaching and learning, using all sources. Problems are defined as problems of performance and of understanding. Primary emotions are part of their process and stimulus to learn.’ (Oosterheert, 2001, p. 46).

The study which Oosterheert conducted suggests that student teachers take different positions on a continuum, from survival to open meaning, with respect to which they may be able to change and that the strongest boundaries are between A and B and between D and E. But many student teachers in this study aren’t ‘directed at changing and developing their existing frame of reference, and their learning environment does not challenge their learning habits either, at least not in a productive way.’ (Oosterheert, 2001, p. 48). There is no direct relationship between learning environment and learning. Learning is according to Oosterheert mediated by the perceptions which learners have of the learning environment and by the learning activities, which they subsequently employ. External sources, such a teacher educators, fellow students, and teaching practice, have to feed the content of the mental activities of student teachers with new information that can broaden their horizons. The most effective way to promote the educational involvement of dynamic activity is to put a lot of effort in the creation of a powerful sensory learning context. ‘Teaching practice is the most important external source in this respect because it is the sensory basis and testing ground for all active and dynamic processing by student teachers.’ (Oosterheert, 2001, p. 123). Another way to stimulate student teachers to involve dynamic activity in their learning and to combine it with the use of active sources is to make them aware of it.

An other conclusion in the thesis of Oosterheert is that she assumes that the higher the student teachers’ self-esteem, the lower his anxiety for surprising reconceptualisations is, and the more ready he is to engage in a way of learning in which attention is freely delegated to dynamic sources. Korthagen subscribes in a way to this point of view: (…) ‘the more that teachers know about themselves – the private curriculum within – the more their personal decisions are apt to be about how to pave the way for better teaching.’ (Korthagen, 2004, p. 82).

Self-determination

Korthagen also pleads for a more holistic approach in teacher education. The point of departure has to be the power of the student teachers; their qualities and their inspiration. Korthagen shows that this can lead to the fulfilment of the three ‘human needs’, which are mentioned in the ‘self-determination theory’. These three needs are autonomy, competency and relation. In this theory one can only fulfil the need ‘competency’ when the other two needs are fulfilled. Personal relations like authentic contact with other teachers, with the students and their parents and with the administrators are essential for the fulfilment of the need ‘relation’. And for the fulfilment of the need ‘autonomy’ it is necessary for the student teacher to connect with his ‘inner self’. Some people can achieve the fulfilment of the three needs by their selves, but the majority of the student teachers need coaching. Coaching on how to reflect on acting in the context of the three needs (Korthagen, 2007).

Personal development of student teachers

The key question in this paragraph is ‘How do student teachers learn?’ In the previous paragraphs, the answers on that question mainly came from the area of the profession-
al development of student teachers. Korthagen emphasised that a holistic approach is important in teacher education. The professional development of student teachers can’t be seen without the personal development of student teachers. So in this paragraph the stages of personal development where the majority of the student teachers are in when they are in teacher education and what the accompanying implications are will be explored.

Luken refers in his article to the moral phases of moral development of Kohlberg, to the phases of development of the ‘ego’ of Loevinger and to the five orders of consciousness of Kegan (Luken, 2008). From the age of 23, it is possible to enter Kohlberg’s ‘Post conventional stage’, but only 15% of the people will enter this stage. This means that 85% of the people will stay on functioning in Kohlberg’s ‘Conventional stage’. In this stage the school or company where someone is working, is the centre of attention. An other name for this stage is the stage of ‘Law and Order’ because laws and conventions at the workplace or in the society are important. The 15% of the people, who do enter the next stage, are able to put laws and conventions into perspective, are able to make their own engagements and are also able to create their own ethics based on universal and ethical principles.

The majority of the adults will enter the fourth stage of development of the ego according to Loevinger (Luken, 2008). The viewpoint in this stage has changed from egocentric to group centric. The identity of a person depends on the group to which the person belongs. In this stage, people are preoccupied with looks, material goods and ‘being accepted’. This means that only a minority of the people will enter the four other stages: the stage of self-awareness, the conscientious stage, the individualistic stage, the stage of autonomy and the integrated stage. Only those people will be able to be more self-reliant, see individual differences, set long-term goals, feel responsible, integrate diverge ideas and will be able to respect the autonomy of others.

Luken summarizes that on the whole, Kohlberg, Loevinger and Kegan are telling us the same: The average adult is ‘conventional’ or a ‘conformist’. ‘This means that he/she lives according to patterns of behavior and standards and values which are adopted from their environment without an independent viewpoint construction. The majority of the young adults are not able to self-rule or self-tuition. They miss the autonomy and an overview for that.’ (Luken, 2008, p. 139).

This quotation of Luken easily fits in the theory of Oosterheert and Reis. (Oosterheert, 2001, Reis, 2008). According to Oosterheert most student teachers rely predominantly on active sources of regulation instead of dynamic sources. And those who have just passed the survival stage may not process information, which disturbs the balance, they built up. And according to Reis student teachers who don’t reconceptualise, will stay an ‘imitator’ of their own teachers.

Summary

In conclusion, we can summarize: When teacher educators focus more on a holistic approach (Korthagen, 2007) on changing students’ mental models of learning to teach and their associated learning habits (Oosterheert, 2001), try to make the students aware that knowledge growth cannot always occur ‘here and now’ and that improved perception and understandings needs just to be ‘waited’ for (Oosterheert, 2001), provide many different learning environments and schools for practise (Korthagen, 2004) and when teacher educators coach the students towards autonomy and having an overview of the profession (Luken, 2008), student teachers will learn.
The effects of study abroad on the development of student teachers

The key question in this paragraph is ‘Which (categories of) effects of study abroad within teacher education are mentioned in the literature?’ The studies of Cushner (Cushner, 2002) and Dooly (Dooly, 2006) and the output of the ‘ETEN workshop’ will be the main pillars in this chapter next to the answers and doubts from other studies and articles.

The study of Cushner examined the nature of the international student teaching. Fifty student teachers reported how their teaching experience abroad affected them personally and professionally. The study of Dooley was based on an international project and involved 160 students from eight countries. The project was based on a blended learning environment which included a course on intercultural communication, a teaching period of 100 hours in a primary school in another country, a workshop on planning an management of transnational projects in schools and an introductory course on the country where the course was being developed (Dooley, 2006).

The greatest impact out of Cushner’s study was on students’ beliefs about self and others as evidenced through increased cultural awareness, improved self-efficacy and self-awareness, and professional development in terms of global-mindedness. Dooley’s findings add to that: new ideas, contacts with future partners, enthusiasm and courage to carry out international projects with their own future students.

The thirty participants of the seminars of the Theme Interested Group (TIG) ‘Internationalisation’ of the European Teacher Education Network (ETEN) came from seven different European countries and from the USA. They have different backgrounds varying from coordinator of internationalisation to lecturer, scholar, administrator and people from international offices. What they all have in common is their interest in internationalisation in teacher education. After a short introduction these participants were asked to work together on a worksheet in groups of three or four members. Nine worksheets were handed in at the end of the workshop. At the worksheets the group members filled in per appearance of study abroad which categories of effect on the professional and personal development of student teachers they have recognized in their practice. Table 1. Corresponds to the categories, which were mentioned in the worksheets and to the number of times these categories were mentioned.

**Table 1: Categories of effect mentioned by the participants of the ‘ETEN-workshop’**

<table>
<thead>
<tr>
<th>Category</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Language skills</td>
<td>9</td>
</tr>
<tr>
<td>2 Cultural skills/cultural sensitivity</td>
<td>8</td>
</tr>
<tr>
<td>2 Empowerment of the self/self-esteem/self-reliance</td>
<td>8</td>
</tr>
<tr>
<td>3 Knowledge relevant to the profession of teaching</td>
<td>7</td>
</tr>
<tr>
<td>4 Frame of references</td>
<td>6</td>
</tr>
<tr>
<td>5 Flexibility/ability to improvise and adopt</td>
<td>4</td>
</tr>
<tr>
<td>5 Global network/friendship</td>
<td>4</td>
</tr>
<tr>
<td>6 Knowledge of another educational system</td>
<td>3</td>
</tr>
<tr>
<td>7 Overview/global mindedness</td>
<td>2</td>
</tr>
<tr>
<td>7 Self-reflection</td>
<td>2</td>
</tr>
<tr>
<td>8 ICT-skills</td>
<td>1</td>
</tr>
<tr>
<td>8 Life-Long-Learning</td>
<td>1</td>
</tr>
<tr>
<td>8 Willingness to innovate</td>
<td>1</td>
</tr>
</tbody>
</table>

**Beliefs and intercultural skills**
The students in the study of Cushner reported impact on their beliefs. According to Oosterheert it depends from which concerns a student has on his mind or which beliefs he has what he could learn from his study abroad activity through dynamic self-regulation. In this context Cushner emphasises that ‘student teachers need more opportunities to examine the interaction between their own beliefs while in specific contexts. Therein lies the power of an international student teaching experience to provide such an opportunity.’ (Cushner, 2002, p. 48). Does an international student teaching experience guarantee reconceptualization? Or does this require an ‘open meaning’ as orientation to learning? (Oosterheert, 2001). Cushner himself emphasizes in this context that the students who developed the most as a result of the overseas student teaching are those whose paradigms shift and whose thinking is modified as a result of the new experiences. Or does a course with e.g. guided self-reflection before and after the stay abroad guarantee reconceptualization? A course like that, could increase the impact of an international experience and according to Cushner, the result of an impactful international experience is that ‘(...) individuals begin to question their stereotypes of others and aspects of their own culture, which had before gone unexamined’. (Cushner, 2002, p. 52). Or does a student need previous intercultural experience like Dooly points at: ‘As has been shown in this research, in many cases, when confronted with new situations the pre-service teachers with more intercultural experience were better able to jointly construct different, innovative categorizations of the linguistically and culturally diverse classroom’. (Dooly, 2006, p. 237)

Student teachers must develop the ability to work with students of diverse cultural backgrounds nowadays; there is no doubt about that. Researchers from the field of cross-cultural psychology and intercultural training emphasise according to Cushner the important role experience plays in cultural learning. In Dooly’s point of view there is, beside the awareness of diversity, also a side effect of experience in cultural learning; Students will also ‘become more aware of the ways in which they are influenced by personal and professional background and formation and by the social and cultural texture which makes up the environment in which they live.’ (Dooly, 2006, p. 237). This side effect could perhaps help student teachers without previous intercultural experience to an other orientation to learning to teach and therefore to reconceptualization at some point.

Self-esteem and self-confidence

Eight of the nine groups from the ETEN-workshop mentioned ‘Empowerment of the self/self-esteem/self-reliance’ as a category of effect. Many participants illustrated this with stories about students who came back after their stay abroad and who became ‘so mature’. They can’t exactly describe what has changed, but they can ‘see the change’. In Cushner’s study students also report an improved self-efficacy. ‘Through facing their personal anxieties and testing their own limitations, students create a space for opportunity and empowerment. In that space, they report the growth of self-confidence and esteem, increased adaptability, resourcefulness, and persistence.’ (Cushner, 2002, p. 54). And according to Cushner: ‘For many students, the overseas student teaching experience represents the first time they have to rely solely on themselves.’ (Cushner, 2002, p. 54). This quotation is in conflict with Teekens point of view on this. She maintains that the use of mobile phones and e-mail makes going abroad no longer a period of being cut off from home. Teekens warns that students could have the feeling that they have not really ‘left home’ and therefore have not actually ‘arrived’ in the host culture. This could prevent one from immersion in the
new situation. ‘Virtual and actual experiences blur and create an illusion of an experience that has not been fully lived. Distance and the bridging of distance, and the cultural differences that are a result of that distance, have been the very foundation upon which international exchanges in higher education have been built.’ (Teekens, 2006, p. 10).

**Overview and worldmindedness**

According to Luken, the majority of young adults is not able to self-rule or self-tuition because of the fact that they miss the autonomy and an overview for that. And according to Oosterheert most student teachers rely predominantly on active sources of regulation. The students of Cushman’s study reported in spite of that an increased development in terms of globalmindedness and in his article, he refers in this context to the study of Carlson, Burn, Useem, and Yachimowicz (1990). They found ‘a variety of attitude changes such as increased commitment to international understanding, increases empathy for other countries’ views, more interest in global affairs, and increased persistence in getting a job done.’ (Cushner, 2002, p. 52). While Cushman’s student were abroad, a teacher at the host school and a senior teacher administrator or representative from a local university supervised them. Did all these students have an ‘open meaning’ as orientation to learning or did they find a very good coach in their teacher at the host school or in the representative of the local university?

Mahan compared ‘at home student teaching experiences’ and ‘overseas student teaching experiences’ and concluded: ‘(…) overseas participants not only acquired more learnings than their conventional counterparts, but their learnings were of a significantly broader scope, encompassing more community and world perspectives and influences.’ (Mahan, 1990, p. 19). These findings are in conflict with the findings of a study of Deng and Boatler which Schuerholz-Lehr refers to: ‘In their study that employed the World Mindedness Scale, neither short-term travel abroad nor a longer-term experience living abroad raised the students’ levels of world-mindedness significantly. (Schuerholz-Lehr, 2007, p. 203). Does study abroad have an effect on the world-mindedness of student teachers? Unfortunately, this question remains unanswerable in this literature study.

**Language skills**

It wasn’t very surprising that all the groups of the ETEN-workshop mentioned ‘Language skills’ as a category of effect of study abroad. When a student needs to speak an other language to ‘survive’ in the new environment, he or she will start using that language and improve his or her skills. This is a useful effect of study abroad according to Teekens. In her point of view: ‘Language education as part of the curriculum in other fields of study must be promoted and supported as a vital element of academic education and ‘Bildung.’ (Teekens, 2006, p. 14).

**More discussion and conclusion**

The value of study abroad is based on the idea that it contributes to academic learning, cultural awareness and international understanding. But as this literature study shows, the effects of study abroad don’t automatically result in these outcomes. It depends on the orientation to learning of the students and if they are able to regulate their own learning. It also depends on how the study abroad activity is imbedded in the study.
programme at home before and after the stay abroad. Teekens e.g. sees ‘fostering self-reflection as a necessary pre-condition because: ‘The mere consumption of difference does not lead to learning, let alone to changes in attitude. Perhaps the danger is even worse. When the international destination becomes just a background for unchanged behaviour, the host environment may quite easily lead to a reinforcement of previous thinking, even of stereotypical thinking and the development of xenophobic views. This phenomenon is easily recognized when international students group together in national ‘cliques’, defensive of interaction with others. In that case, the learning effects may be contrary to the assumption of what the study programme was aiming at.’ (Teekens, 2006, p. 9). It is important that teacher educators are aware that ‘outplace’ student teachers abroad doesn’t automatically generate effect on the personal and professional development of all students. Different student teachers need different approaches and coaching and different student teachers do well by different appearances of study abroad.

References


Web references
http://www.hotelschoolmaastricht.nl (found on: the 14th of November 2008)
http://www.kabk.nl/international_students/-/nl (found on: the 14th of November 2008)
http://www.wageningenuniversiteit.nl/NL/onderwijs/Studeren+in+Wageningen/ (found on: the 14th of November 2008)
6. Do University Teachers Study abroad Participants Make a Cultural Transition?

Melinda Schoenfeldt
Ball State University
Muncie, Indiana, U.S.A.

Abstract

The United States is a culturally diverse country and growing more so. Classroom teachers need to be able to teach children from many cultures. This paper explores the cultural transition of American third year elementary education majors from the state of Indiana participating in a 10 week study abroad program at a small, urban-based British university. The program included university coursework but was largely a school-based practicum. The American students completed pre-program and post-program writings concerning their expectations and experiences. The responses were examined using a narrative analysis qualitative process.

Introduction

In the 1900 United States census, 1 out of 8 Americans was of a race other than White. In 2000, the ratio was 1 out of 4. By 1995, thirty-five percent of all students enrolled in grades 1–12 in public schools were considered to be part of a “minority” group, an increase of 11% from 1976. (US Census 2000) In the mid 1980’s, a Council on Learning Survey entitled College Students’ Knowledge and Beliefs: A Survey of Global Understanding reported that education majors were the lowest scorers on the knowledge portion of the test (Flournoy, 1994). Teacher education, especially as it pertains to teaching students from diverse backgrounds, must improve (Nieto, 2006).

In the US, the landmark report of the National Commission on Teaching and America’s Future (1996) found that teachers make the single greatest difference in student achievement. At the heart of this idea lies the fact that relationships between students and teachers are key (Noddings, 1992; Valenzuela, 1999). Teachers must have a genuine respect for their students’ identities including their language and culture and demonstrate this through meaningful interactions (Nieto, 2006).

Clearly, American teachers have culturally diverse classrooms. American teachers are expected to effectively teach in these multicultural settings. The terms multicultural and intercultural are sometimes used interchangeably. Camilleri (1992) has suggested that multicultural is a descriptive term that refers simply to the acknowledgement of pluralism and the realization that diverse cultures coexist, while intercultural suggests actual interaction among people of different cultures. This research paper was interested in this ability to interact and looked for evidence of intercultural competencies of the participants.

Purpose of the study

How can teacher education programs better prepare their pre-service teachers to teach in diverse classrooms? The study abroad program of this study was developed in response to the recognized need for greater intercultural awareness and understanding of pre-service teachers.
The purpose of this qualitative study is to describe the results of a ten week international experience of third year education majors, and to examine those students’ writings for possible growth in understanding of the socio-cultural context of teaching and learning and their own intercultural adaptability. The experiences were specifically designed for undergraduate education majors to expand their global awareness and to provide experiences and knowledge which they could apply in their future classrooms. “Exposure to another country’s educational system broadens the student teachers’ perspective on education and shows them that there are other ways to achieve the same ends” (Mahan & Stachowski, 1989, p. 38). Or as Quinn, Jarchow, Powell, Barr, & McKay (1995) put it, “to expand student teachers’ professional horizons” (p. 19). Labusher (1994) refers to such a program as an “opportunity to immerse (oneself) in a ‘living laboratory’ that forces (one) to become actively involved in the learning process on every level-intellectual, psychological, and emotional” (p. xiv). Living and teaching in international settings for extended periods of time provide pre-service teachers ongoing opportunities to test personal theories about teaching students from other cultures.

But what is culture? One of the simplest and oldest definitions used by social scientists explains that culture is the full range of learned human behavior (Tylor, 1924) and that serves as the operational definition for this study. Sussman (2002) reminds us that all people assume their way of thinking and acting is the right way of doing things and that it doesn’t take a sojourner long to discover that people in their host country think that too: that they think and act differently than “we” do.

Kim (2001) suggests that becoming intercultural is a process of moving along a continuum from being a cultural outsider to an increasingly effective cultural insider. Kim identifies three outcomes of becoming intercultural: 1) a respect for all cultures, 2) an understanding of what ones in another culture think, believe, and feel, and 3) an appreciation for differences among cultures. These three outcomes are desirable competencies for teachers. So, can a short term stay in a new culture allow for any intercultural growth? Does the current study’s data contain any evidence of this change?

Context of the study

Participants

Participants in the study abroad program consisted of 19 traditional third year students majoring in elementary education at a medium-sized Midwestern American university. Three of the participants were males and 16 were females. All were native born Americans. One had traveled through Europe on short tours with her youth orchestra at ages 10 and 12 and had traveled with her family to Italy. One had trained for two months on a U.S. military base in Japan, and one had lived as a small child on U.S. military bases in Japan and Korea. None of the others had traveled outside of North America. Because of the American university’s proximity to Canada, several had visited Canada and two had been to Cancun, Mexico on spring break trips.

Program and location

The study abroad experience was a 10 week program at a small, urban-based British university. The program included university coursework but was largely a school-based practicum. The participants were housed in university housing with local and
other foreign students. Teaching placements were at local British primary and junior schools. Each participant was placed in a self-contained classroom and worked with one teacher.

**Data collection procedures**

The most commonly used method to assess effects on sojourners is some type of personal reflection, usually post-sojourn questionnaires or interviews or both (Carlson, Burn, Useem, & Yachimovicz 1990). There are some potential problems to this approach. First, according to Pool (1966) and Zajonc (1980), an individual’s perceived personal change may not reflect actual change. Secondly, students studying abroad expect to change, so they may attempt to write accordingly (Flack, 1976). To better determine change, “a pretest posttest study design is preferable in research of the effects of undergraduate study abroad programs” (Carlson et al, 1990, p.2). This study’s investigator collected data both pre and post study abroad experience and was also a participant observer.

One data set consisted of word webs depicting the level of knowledge of the “unknown” British culture. Participants also created pre and post-program Venn diagrams depicting their understanding of the comparison of British and American schools. Finally, participants were asked to respond, pre and post-program, to a question about personal/professional growth during a study abroad program.

**Data analysis**

The participants’ responses were examined using a narrative analysis qualitative process, with ideas from both the Cultural Sojourner Model (Sussman, 2002) developed by the Center for Cross-Cultural Research and the Cross-Cultural Adaptation Integrative Model developed by Young Yun Kim (2001). At the heart of narrative analysis is the way people experience the world. Emphasis is on examining the stories people tell. In this study, the participants’ personal writings were examined. In qualitative studies, personal documents provide a reliable data source concerning a person’s attitudes, beliefs, and world view because they reflect the participant’s perspective which is what the researcher is seeking (Merriam, 1998). Additional data sources came from the participant observer researcher’s own personal writings.

**Discussion and findings**

Sussman (2002) explains that the cultural differences sojourners experience evoke various emotional and physical responses. The differences make the sojourners “feel emotionally uncomfortable, mentally exhausted and physiologically stressed: appetite and sleep disturbed” (unit 8, chapter 1, p. 3). Colleen Ward (2001) adds an additional symptom: psychological responses; anxiety, depression, sadness, and anger. Those comments certainly described the participants’ writings.

*I regret I came to Liverpool. I already miss my normal summer at home with friends. I don’t know anyone on this trip and I don’t like the food. I can’t understand the people when they speak to me. I feel alone and am counting down the days until it is over. I’m lying awake and asking myself, ‘What the hell am I doing here?’ This isn’t me. This isn’t what I do. (Student 1)*
I’m not sure I can make it for ten weeks. What in the world made me think that I could be away from everything familiar for this long? (Student 2)

I boarded an airplane envisioning this trip to be fun; traveling, learning, exciting, adventurous, and just a wonderful time. I never took into account the challenges. Ten weeks of little communication with home, weird food, slow internet, no phones, no real sight of American comforts was not the experience I had expected. Homesickness. Tears. (Student 3)

The city bus ride had been a big surprise. The nineteen third year education students from the United States knew they would have to ride a bus to get to their teaching assignments at the British primary and junior schools, but once on, they noticed it was full of young students all wearing various colored, yet all similar, school uniforms. They had just encountered two of the first of many school-related culture shocks. There were no yellow school busses and the “public school” students were all wearing uniforms. Two or three of the American third years had expected uniforms. They had written that down in their pre-study-abroad Venn diagrams comparing US and UK education. Most of them however had written very little on those diagrams. They didn’t know anything concrete about any education system other than the typical American experience. They hadn’t really ever questioned how others “do school”.

After being dropped off by the city bus at the end of the school’s drive, the third year education majors walked up the long drive and through the teachers’ parking lot to the front door of the school dressed in typical American teacher clothes: females in slacks and nice shirts or sweaters; males in dress slacks, dress pants, and ties.

Whispered voices noted the similarity of the brick façade to American elementary schools they had seen, taught in and attended themselves. Observations of outdoor play spaces were whispered among the group. “I see soccer goals.” “Nice big open area.” Once inside the school’s main door, they dutifully signed the visitor’s register placed near a sliding glass window. Culture shock had given way to familiarity. Then they caught glimpses of teachers in the hall wearing very casual clothing, making them feel overdressed. And when the window opened, and a voice with a thick “Scouse” accent greeted them, most stood and stared. They knew the words were English, but many had no clue what the school’s secretary had said. The third years were again reminded that they were no longer on home turf. (Researcher/Participant observer)

The early experiences of the participants were certainly uncomfortable. Would they adapt? There are many theories about the stages of cultural adaptation. Oberg (1979) describes the sojourner’s cultural journey as a 4 stage process. 1) Elation at the new culture, 2) hostility towards the foreignness and a turning towards others from home, 3) a recovery stage where the newness is accepted and 4) acceptance and enjoyment of the new customs. Similarly, the U-Curve hypothesis (Brein & David, 1971, Church, 1982, Furnham, 1988 & Lysgaard, 1955) describes the same journey as a three stage process of 1) elation, 2) dip in satisfaction, followed by 3) recovery and enjoyment. Some researchers (Ward & Kennedy, 1996) have said that an inverted U was more descriptive of their participants’ journey while Brein & David, (1971) add
that looking at total experience including the reentry of sojourners to their home culture creates a W or double U experience.

The participants of the current study didn’t experience the highs of the experience at first. But their pre-experience writings about their expectations before even leaving for England did.

*I want to expose myself to a culture and education system different than ours.*

(Student 8)

*I absolutely love traveling and meeting new people. It has always been a huge dream of mine to visit Europe.*

(Student 5)

*I always wanted to experience a different culture.*

(Student 4)

*I am adventurous and love to try new experiences. I enjoy learning about others.*

(Student 3)

*This is going to be a great opportunity to be in different cultures and be able to learn to adapt to new experiences.*

(Student 18)

*I always wanted to visit England.*

(Student 2)

*I have dual citizenship thanks to my grandparents; Irish and American, so I’m looking forward to exploring and living in the UK.*

(Student 1)

*I want to study abroad so I can be a more culturally relevant teacher.*

(Student 6)

This group of sojourners had begun their elation period while still at home. They had high hopes for their learning and perhaps unrealistic expectations of how they would feel when away from their usual support network and surroundings. The first few days and weeks of being abroad pushed them to the bottom of the “U” rather quickly.

Were their writings going to reveal the upward rebound period? If yes, then what would bring about that change? Kim (2001) suggests three factors that play a key role: 1) a personal desire and willingness to adapt, 2) seeking support from fellow sojourners, and 3) seeking opportunities to interact as a native in the non-native environment; the When in Rome do as the Romans do idea. The participants’ writings indicate the presence of these three coping factors.

*Something I already knew but which became much clearer on this trip was the thing I look for out of any experience. Places like Rome, Venice, and Scotland are beautiful, but it is the people I met and the relationships I formed that I take from these places.*

(Student 18)

*When we made friends with the local Scousers it was all over. I was hooked! They showed us what Liverpool is all about and it left me wanting more.*

(Student 5)

*I believe one huge difference in me as a result of this program includes my sensitivity to other cultures. Going to foreign places, I just expect people to under-
stand and speak English and in a sense accommodate me as an American. This usually is the case, but it makes me feel so ignorant! (Student 11)

I was always the shy, quiet girl who never voiced opinions or made serious plans. Now I am much more open about my opinions because I learned to open up to new people. And I can plan trips to Italy and learn how to use the transportation systems. I can ask directions from strangers. I am able to miss a flight and be okay with it because I know it is just another wild adventure. (Student 9)

I made it through ten weeks being away from all the people I love, finding there is even more room in my heart for the new people I now love. (Student 4)

It is simply amazing how much this place has become like home to me. When I first got here it all seemed so different and unfamiliar. (Student 7)

I didn’t eat much for about a week. Now I can’t imagine life without this food! (Student 12)

The students I taught at St. Mary’s really opened my eyes to the skills I have learned from my college career so far. The school’s hospitality was phenomenal. My classroom teacher, Miss G was so inspiring to work with. I learned a lot from her both professionally and personally. (Student 16)

Teaching in the schools here has really taught me a lot about what I will and will not incorporate into my own classroom. I’m much more able to handle misbehavior and silly fights. I also learned a lot from the school teachers about how to cooperate on lesson planning and creating multi-class activities. (Student 8)

I met an amazing group of students at Woolton and had the support of a wonderful teacher. I stood in front of a whole class and I taught. And they learned. I wrote lessons and a unit. I made mistakes. But each day I learned more and felt more confident. I experienced a support system at Woolton. I sat in a teachers lounge in England and felt like a real teacher; one who belongs there. (Student 6)

I had to branch out and make friends. I have made at least two very good friends. I know that they would do absolutely anything for me and I would do the same for them. I think that shows a lot about how this program is conducted and set up. We all came here as individuals and in my opinion we are leaving as a sort of family. I know that if I had not come on this trip I would not know anyone of the other 18 and now that I do know them it is weird to think of my life without them being involved. (Student 2)

I have met tons of new friends. I do not want to go home. I’ve gotten used to the food and I can even understand people when they talk to me. I am now an independent person. The thought of moving away and starting somewhere new does not scare me anymore. I adapted, I made new friends, and I feel confident. If I can do that here then I know I will be able to do it when I leave college and am
forced to go where the job takes me. I am glad I took this trip. I have grown as a teacher and a person. (Student 1)

I am more aware of the educational differences and I was enlightened by the different teaching techniques and curriculum standards. I have grown as a future educator. (Student 10)

For the last 10 weeks I have been climbing a mountain. It has been hard and sometimes scary along the way, but today I reached the top. It is amazing to see how far I have come and what I have learned. I am a new person. Tomorrow I climb down, but not alone. The 19 of us will return to our different lives, but be forever changed by this experience. (Student 3)

The participants had adapted. They no longer felt strange and alien. So in that sense they had become more intercultural. They recognized significant personal change. All of the participants’ writings indicated a better understanding of how the British people they encountered think, believe, and feel; especially in their school placements. Most also noted an appreciation for differences among the cultures encountered in England and in their travels to other countries. Their writings mentioned a respect for others’ ideas and way of life. They even grew to tolerate, and in some cases, enjoy the local food.

Nieto (2006) urges teacher education programs to encourage pre-service teachers to learn about their students and to respect the contexts in which they live. One way teacher education programs can do this is by providing field experiences that help pre-service teachers learn about cultures other than their own. The participants in this study did show intercultural growth and intercultural competencies. But one study cannot be generalized to all such programs. It is necessary to continue this research on subsequent study abroad programs.

There were glum faces all around. No one was talking. Suitcases sat on the curb waiting to be put in the nearby vans and pull-behind trailers. It’s amazing how much stuff accompanies 19, twenty year olds. Some of the third years were seated on their luggage aimlessly kicking at blades of grass. It seemed to be a flashback to a day ten weeks prior when those same suitcases and students were discharged from the same vans and trailers onto this very parking lot amid the dorms. The same glum looks as they surveyed dorm rooms. This group lived in their own apartments back in the states and drove themselves wherever they wanted or needed to go. They were moments away from heading back to those lives they so cherished and missed only ten short weeks ago. This time though the sadness was about leaving this place; leaving those dorm rooms, slow internet, no phones, weird food, bus trips to school each morning and a 45-minute trek on foot home after teaching. The very things they most disliked ten weeks ago were things they would miss. The moment was broken when the drivers loaded the last bag, tooted their horns and cajoled the last straggler into a seat. More than a few tears flowed down cheeks as the vans headed back to the airport that would take these students “home”. (Participant Observer/Researcher)

References


IV Movement, Health, and Outdoor Learning
7. Inclusion in Physical Education in the United States

David G. Lorenzi
Indiana University of Pennsylvania
Indiana, United States

Introduction

The field of education has witnessed significant changes in the past two decades. Most significant among these changes has been the education of students with disabilities. In the past, it was common practice for students with disabilities, usually mental or physical, to be educated in separate schools or institutions. With the advent of national special education legislation, it is routine for students with disabilities to be educated in their neighborhood schools and included in regular education classes. As a result, inclusion can be described as the philosophy of supporting the educational needs of students with disabilities in general education classrooms, including general physical education (Block, 2007).

Litigation and legislation

According to the United States Department of Education (2005), approximately 96% of students with disabilities are educated in general education schools. The number of students included in general education classes has steadily increased over the past twenty years primarily due to a series of social, legislative, and political events that have emphasized equal participation of children with disabilities with their peers. Some of this important legislation has included the historic Brown v. Board of Education ruling of 1954 which ruled that separate education was not equal, the Rehabilitation Act of 1973 which made equal participation a civil right, and the Education for Handicapped Children Act of 1975 (P.L. 94-142), which provided resources for applying this concept in the public schools (Heikinaro-Johansson & Vogler, 1996). P.L. 94-142 evolved into the Individuals with Disabilities Education Act (IDEA) of 1990 and further specified that all people with disabilities, of school age, have access to physical education in a normal school environment. The passage of this law guarantees access to a free and appropriate public education in the least restrictive environment along with guarantees of due process (Horvat, Eichstaedt, Kalakian, & Croce, 2003). IDEA also requires that each student with a disability have an Individualized Education Plan (IEP) created which may include a program of regular physical education and/or adapted physical education appropriate to the individual. In 2004, IDEA was revised and reauthorized under the Individuals with Disabilities Education Improvement Act (IDEIA).

Inclusion and physical education

There has been much debate in the literature regarding the topic of inclusion and, more specifically, including students with disabilities into general physical education classes. Much of the inclusion debate has centered on the issues of whether or not inclusion is being carried out in accordance with the current laws and whether or not the inclusion process itself has been successful. Inclusion is more than simply a placement of students with disabilities into regular physical education, but actually consists of a process of determining the least restrictive environment for each individ-
ual student. As a result of the shift toward progressive inclusion, physical education and sport programs have been forced to change (DePauw, 1996).

Among the many provisions required by law, students with disabilities are required to participate in physical education. The legal mandates of the 1970s helped to transform adapted physical education from a medical model approach to more of an educational approach (DePauw, 1996). Before the late 1970s, however, children with disabilities were often isolated in institutions or separate schools and generally received little or no physical education instruction (Vogler, 2003). Presently, IDEA specifically defines physical education as a direct service, which includes instruction in physical fitness; fundamental motor skills and patterns; and skills in aquatics, dance, and individual and group games and sports (including intramurals and lifetime sports).

Since physical education is a federally mandated component of special education services, adapted physical education is considered a direct service and not a related service as it is often viewed. Along the continuum of placements for students with disabilities, physical education can be provided within the general or regular physical education program or through a special program of physical education termed adapted physical education. One of the earliest definitions of adapted physical education is a “diversified program of developmental activities, games, sport, and rhythms suited to the interests, capacities, and limitations of students with disabilities who may not safely or successfully engage in unrestricted participation in the vigorous activities of the general physical education programs,” (AAHPERD, 1952). Adapted physical education can more simply be described as special education in physical education. More specifically, adapted physical education involves the process of developing and implementing specially designed instructional programs for learners with disabilities in a physical education setting. The adapted physical educator’s role is to develop appropriate IEP’s for individuals with disabilities in a physical education setting (Auxter, Pyfer, & Huettig, 2005).

While it is important that physical education is specifically defined and mandated in the IDEIA, one problem that has surfaced with this legislation is that each state has been left to define and determine what is appropriate physical education and adapted physical education and determine how to comply with the legislation. As a result, there has been a growing need for research pertaining to the efficacy of inclusion in physical education (Siderdis & Chandler, 1997). This research should include a critical examination of how inclusion is being incorporated in U.S. public school systems, specifically in the field of physical education, and whether these approaches to inclusion in physical education have proven to be successful. This particular line of inquiry may lead to possible improvements in physical education for students with disabilities.

The importance of having appropriate physical education services available for students with disabilities in U.S. public schools has been highlighted by some recent findings. According to the results from the School Health Policies and Programs Study (SHPPS) 2000 (Burgeson, Wechsler, Brener, Young, & Spain, 2003), almost two-thirds (61.9%) of schools included in this study have students with permanent physical or cognitive disabilities. Among these schools that have students with disabilities who participate in required physical education, 84.5% have some students who participate only in regular PE, 37.7% have some students who participate in both adapted and regular physical education, and 27.5% have some students who participate only in adapted physical education. The majority of the instruction for students with disabilities in physical education is provided by the regular physical education teacher, despite the fact that there are now nationally recognized and certified adapted
physical education specialists trained to work with students with disabilities in a physical education setting.

Barriers to inclusion in physical education

Problems with inclusion in the field of physical education have been well documented in the literature (Block, 1999; Block & Vogler, 1994; Heikinro-Johansson & Sherrill, 1994). Some of these potential barriers to inclusion that have been identified include schools not carrying out the inclusion process properly, inadequate teacher preparation (both undergraduate and graduate education programs), inadequate professional support (in-service training for teachers and the use of aids or paraprofessionals), inappropriate resources (equipment), large class sizes, and negative teacher attitudes. In particular, many researchers currently believe that attitudes play an essential role in the successful inclusion of students with disabilities in general education settings (Conaster, Block, & Gansneder, 2002; DePauw & Doll-Tepper, 2000; Downs & Williams, 1994; Folsom-Meek & Rizzo, 2002; Hodge, Davis, Woodard, & Sherrill, 2002; Kudlacek, Valkova, Sherrill, Myers, & French, 2002; Rizzo, 1984; Schmidt-Gotz, Doll-Tepper, & Lienert, 1994; Siderdis & Chandler, 1997; Slininger, Sherrill, & Jansowski, 2000; Theodorakis, Bagiatis, & Goudas, 1995).

Teacher attitudes toward inclusion

Specific to the problem of negative teacher attitudes towards inclusion, there have been a variety of attitudinal studies pertaining to including student with disabilities in physical education (Hodge, 1998; Martinek & Karper, 1981; Martson & Leslie, 1983; Patrick, 1987; Rizzo, 1984). The body of knowledge regarding teacher attitudes toward inclusion has continued to develop and expand. Researchers have examined not only in-service physical education teacher attitudes toward the inclusion of students with disabilities, but also preservice physical education teacher attitudes. A necessity exists for the appropriate training of prospective general physical education teachers to enhance their competence and foster their confidence in teaching students with disabilities (Kowalski & Rizzo, 1996). As a result, numerous attitudinal studies have focused on preservice physical education teachers. For example, in a study by Hodge (1998), it was reported that prospective general physical education teachers’ attitudes varied significantly as a function of gender and previous experience teaching individuals with disabilities. Specifically, the females in the study expressed significantly more favorable attitudes toward teaching students with disabilities than their male peers and students who had prior experience and contact with individuals with disabilities also expressed more positive attitudes toward teaching students with disabilities.

Some of the consistent findings from these attitudinal studies towards teaching students with disabilities in physical education are that attitudes are influenced, to a certain degree, by the gender, knowledge, and the experience of the teacher, by the type(s) of student disabilities, and by the grade level being taught. For example, in terms of grade level being taught, inclusion is generally viewed more favorably with respect to young learners (DePauw & Goc Karp, 1990; Rizzo, 1984). Additionally, teachers with more experience working with students with disabilities seem to possess significantly more favorable attitudes than teachers with less experience (Block & Rizzo, 1995; Kozub & Poretta, 1998; Rizzo & Vospoel, 1991; Schmidt-Gotz et al., 1994). Less clear are the results from attitudinal studies that have examined variables such as teacher’s age and gender.
Research has shown that preservice teacher attitudes are related to the undergraduate preparation received in university-based PETE programs. Rizzo & Kirkendall (1995) argued that professional preparation programs charged with preparing prospective physical education teachers should prepare them to accept the responsibility of providing quality educational experiences for students with disabilities in integrated physical education settings.

**Physical education teacher education**

The inclusion of students with a variety of disabilities in general physical education classes is commonplace in the U.S. public school system. As a result, university-based PETE programs traditionally provide preservice physical education teachers an introductory adapted physical education course as part of their professional preparation. Jansma (1988) described the introductory adapted physical education course as a survey course designed to introduce enrolled students to content and pedagogical knowledge required to teach students with disabilities in physical activity settings. Typically, preservice physical education teachers are often exposed to only one adapted physical education course in their programs of study (French, Jansma, & Winnick, 1978; Jansma, 1988; Rizzo & Kirkendall, 1995; Walsh, Jansma, & Poretta, 1992) with a number of these courses not providing any practicum experiences (Hodge & Jansma, 1997/1998).

While there are some introductory adapted physical education courses that do not require a practicum experience, most experts agree that a “hands-on” practicum experience can enhance content covered in the classroom. Practicum experiences have been utilized in preservice teacher education programs to provide “hands-on” learning experiences to supplement classroom theory. In the field of adapted physical education, the practicum experience has typically been required as part of the introductory adapted physical education course. This practice of coupling the introductory adapted physical education course with a practicum experience has been endorsed by numerous national associations such as the American Association for Health, Physical Education, and Recreation (1973) and the National Consortium for Physical Education and Recreation for Individuals with Disabilities (1995). University-based PETE programs may need to examine appropriate practicum experiences for preservice physical education teachers in working with students with disabilities in physical activity settings. It has been documented in the literature that physical education preservice teachers often have formed opinions or beliefs about the nature of teaching physical education in general and specifically about the inclusion of students with disabilities before acquiring direct experience (Hodge & Jansma, 2000; Kudlaeek et al., 2002). Systematic, early experiences for preservice physical education teachers in working with individuals with a variety of disabling conditions in physical activity settings has been proven to be valuable in creating positive attitudes and enhancing content knowledge pertaining to inclusion.

Despite the numerous attitudinal studies conducted in the fields of physical education and adapted physical education pertaining to the inclusion of students with disabilities in physical education classes, relatively few have been based upon theory. In fact, the vast majority of the attitudinal studies that have been conducted to date in the field of physical education and adapted physical education have been atheoretical and not connected to relevant theoretical constructs (Tripp & Sherrill, 1991).

**Current status on inclusion in physical education**
Despite the numerous problems that have been identified regarding the inclusion of students with disabilities in physical education in the U.S., better training and new resources are being provided to physical education teachers. Recently, the National Association for Sport and Physical Education (NASPE) in conjunction with the American Association for Physical Activity and Recreation (AAPAR) have released a position statement on the Eligibility Criteria for Adapted Physical Education Services (American Association for Physical activity and Recreation/National Association for Sport and Physical Education, 2010). This document provides general physical education teachers with an overview of the legislative mandates related to physical education for students with disabilities and specifically outlines the placement process for students with disabilities into appropriate physical education settings. Finally, numerous resources, including journal articles, textbooks, and assessment instruments are included in this position paper.

While as a country, we have made great strides in providing better educational environments for individuals with disabilities in the public school system, the field of physical education still needs to do a better job in providing a continuum of placement options for students with disabilities in physical education. Better pre-service and in-service training for physical education teachers is needed for teachers to be able to successful include students with disabilities in general physical education classes.

References


V Myths and Fairy Tales
8. Portugal and the Sea – A Journey

Cristina Ferreira Pinto
School of Education - Polytechnic Institute
Porto, Portugal

It was the 14th C. There were few things known about the Sea and the World. Yet our adventurous and fearless spirit went past the inhabitable zone and discovered a world of wonders and new peoples. But it was not all a “sea” (bed) of roses, as we say in Portuguese. This paper not only shows the heroism of the Portuguese but also the despair and the melancholy of the families that stayed behind, the suffering of many people.

The “Western Lusitanian Shore”, the expression used by the great poet Luis de Camões when he refers to Portugal in The Lusiads, is a seafaring land, a land of sailors, for all senses perceive the Sea. The Portuguese Man was born there where “the land ends and the sea begins”, a seafarer by nature, a dreamer by excellence.

In this paper, I will try to offer an emotive trip through the words of some of our poets, because they all reveal the Being and the Conscience of our identity. Camões (ca.1524-1580) is considered Portugal’s greatest poet, and The Lusiads, the Portuguese national epic, an epic of national identity.

Vasco da Gama’s expedition to India forms its main subject, but the heroes are the Portuguese people. Real, historical and legendary events are interwoven, and the poem also uses classical mythology and Christian allusion.

Camões’ poem is the best window overlooking Portugal; but the Portuguese dream also takes us to other seas and to other poets, like Fernando Pessoa. His Mes- sage (1934) is a very unusual 20th Century book: it is a symbolist epic made up of 44 short poems organized in three parts, of which the second, called “Portuguese Sea” is perhaps the most important, because it refers to the country’s Golden Age of maritime supremacy in the South Atlantic and Indian Oceans that ended abruptly with the death of King Sebastian at El-Ksar el-Kebir (in 1578).

I have thus set out on a journey through the themes that have shaped up and re-puted our soul, and built a narrative of our experience as a people.

<table>
<thead>
<tr>
<th>Setting Out and Journey</th>
<th>Nostalgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tragedy</td>
<td>Absence</td>
</tr>
<tr>
<td>Myth</td>
<td></td>
</tr>
</tbody>
</table>

All these themes will be framed by the Dream. Let us sail for a while, then, on Portuguese literary waters and let me say like the sailors: Have a pleasant voyage!

Although there have been several attempts to translate The Lusiads into English, none has been very successful. I am using the translation done by William Julius Mickle, edition of 1877. Mickle employs AABB couplets, whereas Camões used ottava rima, an ABABABCC form. He also took a few liberties with the text but the translation is perfectly readable and worthy.

Setting out and dream

"Proud o’er the rest, with splendid wealth array’d,"
As crown to this wide empire, Europe’s head,
Fair Lusitania smiles, the western bound,
Whose verdant breast the rolling waves surround.

Luís de Camões, *The Lusiads*, III:20

"Europe lies, reclining upon her elbows:
From East to West she stretches, staring,
[...]
Enigmatic and fateful she stares
Out West, to the future of the past.
The staring face is Portugal."


Each of the two greatest poets of Portuguese Literature sees Portugal this way: a land that sets itself before the distance and the infinity of the sea and gazes at that mysterious and ominous infinity. The unknown water reflected in the sky offers itself as the desired fruit, not yet attained.

Pessoa clearly shows us how this sea that stretches itself to the inaccurate distance of the horizon is a desired fruit, a subtle call. He refers to the “Voice of a distant mermaid crying, calling” that “comes from the depth of distance, from the bottom of the sea, from the soul of the abyss”.

So much is lost in the translation of his rhymed poetry that the final result doesn’t pay the right tribute to his genius. *Message* was not written in standard Portuguese but rather in the orthography used before the First World War. Because this was the poet’s own choice, the contemporary translator (João Manuel Mimoso) had to maintain the style to preserve the original mood.

The sea becomes destiny: The Portuguese Fado (Fate). Thus each man, each king, a piece of the great puzzle, will fulfil their share of the collective Fate.

"Like a brook, that song, young and pure,
Searches out the ocean-to-be-found;
And the talk of the pine groves, dull rumble,
Is the present sound of that future ocean,
Is the call of the land yearning for the sea."

Fernando Pessoa, *Message*, “King Dinis”

The last three lines admirably reveal the notion of complementarity, of symbiosis between the present and the future, between the land and the sea. They are the duality of a whole single body. The sea becomes desire, search, and completeness. The distant horizon becomes the wish to depart; the poet’s dream is utopian and is accomplished by the sailor’s voyage. Poets and seamen share the same soul, the same nostalgia of the departure; this way every seaman is a poet and the soul of the great poets is also a seafarer’s.

The Portuguese daily life is linked to the sea. The sea becomes a profession. The life and the spirit of the Portuguese man mingle with the sea. But the blending of the land with the sea demands the departure, the voyage throughout the sea. To leave becomes synonymous with action, dream, courage, trouble, and opposite of apathy, contentment, monotony. Another poem from *Message*, entitled “The Fifth Empire”, becomes significant in this context.

---

2 *The Lusiads* is divided into 10 books and each book is made up of stanzas. The first number (Roman numeral) refers to the book; the second (Arabic numeral) identifies the stanza.
Portugal was thus shaped in the habit of dissatisfaction, of the natural need of search and desire, in the emotion of departure. Leaving becomes urgency, an eager desire of Wholeness or a way of reaching the Distance.

The departure and the voyages of the great sea explorers have marked our soul for ever. “The immensity of the immense sea” entered the soul of the Portuguese people and the daily life indoors became unbearable. The dream shaped the dissatisfaction and, from dream to dream, the Diaspora became the Portuguese reality. The seafarers gave new lands to the world and the Portuguese, from land to land, is a citizen of the world.

In his book *A Viagem de Vasco da Gama (Vasco da Gama’s Journey)*, a contemporary writer says:

“To be able to feel the Portuguese way of thinking and feeling it is necessary to plunge our heart’s eyes in the SEA, a mysterious element that carries us to the continents of dream and fills our soul with nostalgia(...)” "The Portuguese are children of Neptune.”

Paulo Alexandre Loução (Lisboa: Êsquilo, 1998)

And the same author goes on: “It is the Lusitanian’s imagination that is only happy in the mysticism of the great projects. The Portuguese not only need bread; they also need the dream to survive.”

And thus everything happened. Thus we have departed, facing the immeasurable ocean and Camões said spreading everywhere

"ARMS and Heroes, who from the Western Lusitanian Shore,
Thro’ seas where sail was never spread before,
Beyond where Ceylon lifts her spicy breast,
And waves her woods above the wat’ry waste (...)

Camões, *The Lusiads*, I:1

Throughout our travel literature we mainly find the word «departure». What matters is not to arrive but to leave.

Through the dream we go
(...)
- We leave. We go. We are.

Sebastião da Gama, *Through the dream we go*, “The Dream”, (1953)
To arrive, or not, is irrelevant, let alone the homecoming. We hardly find this theme in our literature. What really matters is to leave. And Pessoa, in a poem from *Message* called "Horizon" also says that:

“They dream consists in seeing the invisible shapes
Of the hazy distance, and, with perceptible
Movements of hope and will,
Search out in the cold line of the horizon
The tree, the beach, the flower, the bird, the spring
The well deserved kisses of Truth.”

_Fernando Pessoa, Message, “Horizon”_

**Dream and journey**

To leave was part of life and part of History. To leave becomes the necessary adventure: the destiny, the humus of being Portuguese, the essence of his identity. After conquering the land, the sea becomes the missing element in the History of the Country, the missing experience, the waters yet to be discovered, synonymous with the knowledge yet to conquer. Other peoples like the Jews made their voyage on land searching for a promised land. The Portuguese set their land frontiers to the point where the sea begins. And it was precisely on that point that the dream started being built: the distant line of the unknown and promising horizon… after conquering the land we had to conquer the sea.

“And by making the oceans sailable the Lusitanian went beyond the geographical fantasies of the Middle Ages and Humankind became aware of the totality of their space of the until then unknown ROUND EARTH. A new world was just emerging, History leapt forward.” (Paulo Alexandre Loução, ibidem)

The contribution of the Portuguese voyages acquires thus a universal value:

"And the white rim went from island to continent,
Clearing up, racing, to the end of the world,
And the whole Earth was suddenly seen,
Emerging, round, from the deep blue."

_Fernando Pessoa, The Message, “Prince Henry”_

With the new routes and the new maps the world gets definite contours. The Portuguese seafarer, sailing on a dream, went beyond every horizon.

The dream nurtures the imagination and moves hope and will. These emotions will be present at the times of fear and danger that come with every journey. That’s how the hero faces every obstacle and, above all, faces fear.

The Portuguese sailed seas that had never been sailed before. Theirs was a long and doubtful way. When Vasco da Gama tells the King of Melinde (Malindi in Kenya) about the departure from Belém, he remembers well how fear lives in the heart of the brave:

"Perhaps to see my native coast no more--
Forgive, O king, if as a man I feel,
I bear no bosom of obdurate steel.------
(The godlike hero here suppress’d the sigh,
And wip’d the tear-drop from his manly eye…"

_Camões, The Lusiads, IV:87_
But in spite of “despair and fear”, the seamen braced themselves to death, carrying bravely in their hearts their King’s last words:

"Great are the dangers, great the toils, he cried,  
Ere glorious honours crown the victor’s pride"

Camões, *The Lusiads*, IV:78

Fernando Pessoa will equally say:

"(…) All is worthwhile  
When the soul is not small.  
He who wants to go beyond the Cape  
Has to go beyond pain."

Fernando Pessoa, *Message*, “Portuguese Sea”

The Giant “Adamastor” – a mythological figure created by Camões – represents every difficulty, obstacle and accident which make up a sea journey; it’s the embodiment of the fear of the unknown:

« Appall’d, we saw a hideous phantom glare;  
High and enormous o’er the flood he tower’d,  
And ’thwart our way with sullen aspect lower’d  
An earthy paleness o’er his cheeks was spread,  
Erect uprose his hairs of wither’d red;  
(…)  
His red eyes, glowing from their dusty caves,  
Shot livid fires: far echoing o’er the waves  
His voice resounded, as the cavern’d shore  
With hollow groan repeats the tempest’s roar.  
Cold gliding horrors thrill’d each hero’s breast,  
Our bristling hair and tottering knees confess’d  
Wild dread, the while with visage ghastly wan,  
His black lips trembling, thus the fiend began:»

Camões, *The Lusiads*, V:39

Fernando Pessoa in his poem “The Bogey-beast” clearly shows that fear possesses the steersman.

«The bogey-beast that lives at the end of the sea  
In the pitch dark night rose up in the air;  
Around the galleon it flew three times,  
Three times it flew a-squeaking,  
And said: "Who has dared to enter  
My dens which I do not disclose,  
My black roofs of the end of the world?"  
And the helmsman said, a-trembling:  
"King Don Joao the Second!»


However, in their sea journey, the seamen find not only fear and terror, but also things that no one had ever seen before, for instance, the Island of Love.

The Portuguese voyage may embody a broader vision and take a true cosmic value. The true goal in Vasco da Gama’s voyage in Camões’ epic poem does not seem to be India; the Island of Love, out of real space and time, created by Venus for the
Portuguese, presents itself as the ultimate place and thus the place for revelation: the Portuguese are given the new world boundaries and their insertion in the universe.

Water symbolizes wisdom. Venus, the goddess of Love born from the water, divinely symbolizes the link between love and wisdom. Venus helps the Portuguese sailors in The Lusiads. The voyage of the Portuguese navigators was made under her sign: to sail the seas is to pursue knowledge, truth and wisdom. And these are only relevant to humankind when they are built and consolidated on Universal Love. This is the noblest of the lessons Camões teaches us.

Venus’ and her nymphs’ constant identification with the Portuguese symbolically places the voyage of the Portuguese in the sphere of universal good.

" From lowly valley and from mountain grove
The lovely nymphs renew the strains of love.
(…)
As fair Diana, and her virgin train,
Some gaily ramble o’er the flow’ry plain,
In feign’d pursuit of hare or bounding roe,
Their graceful mien and beauteous limbs to show;
Now seeming careless, fearful now and coy,
(So, taught the goddess of unutter’d joy),
And, gliding through the distant glades, display
Each limb, each movement, naked as the day.”

Camões, The Lusiads, IX: 65

The courtship, the feminine seduction and the eroticism present in this core episode of The Lusiads, “The Island of Love” can and should be understood as symbols: love is the only weapon to fight evil represented by Bacchus and the Moors.

" When sudden, all in nature’s pride array’d,
The Isle of Love its glowing breast display’d
(…)
Before the fleet, to catch the heroes’ view,
The floating isle fair Acidalia drew...
(…)
And now, led smoothly o’er the furrow’d tide,
Right to the isle of joy the vessels glide:
The bay they enter, where on ev’ry hand,
Around them clasps the flower-enamell’d land;
A safe retreat, where not a blast may shake
Its flutt’ring pinions o’er the stilly lake.”

Camões, The Lusiads, IX: 52, 55

In The Lusiads, the wrath of the winds surrenders to love. The feminine sensuality of the nymphs is synonymous with blandness and peace, the only force capable of opposing the fury and insanity of the winds.

On the “Island of Love”, the Portuguese seamen attain wisdom, the knowledge forbidden to the ordinary mortals. This Isle becomes the fully attained goal, instead of the consciously wished goal that had been India. They were not crowned by sovereign fame in India; this was done on the island Venus created for them.

As a classical “locus amoenus” out of time and space, like the first Eden in the Scriptures, the “Island of Love” is the prototype of the lost paradise, or better, of the paradise to be conquered again and, in this sense, the metaphorical representation of the human goal: to face knowledge and reach complete human fulfilment. The Island
Venus created in the middle of the oceans for the homecoming represents the moment when man recognizes the value of the accomplished work.

"Here, bath'd in joy, they pass the blissful hours:  
Engulf'd in tides on tides of joy, the day  
On downy pinions glides unknown away.  
(…)  
The nymphs of ocean, and the ocean’s queen,  
The isle angelic, ev’ry raptur’d scene,  
The charms of honour and its meed confess,  
These are the raptures, these the wedded bliss:  
The glorious triumph and the laurel crown,  
The ever blossom’d palms of fair renown,  
By time unwither’d, and untaught to cloy;  
These are the transports of the Isle of Joy."

Camões, *The Lusiads*, IX: 87, 89

On the “Island of Love” the Portuguese seamen attain and enjoy the love of the nymphs. Love and wisdom are, in short, one single thing in *The Lusiads*. They are the twofold reality of the sublime human nature.

And it is in this sense that the voyage of the Portuguese seamen glorified in Camões’ poem acquires an original epic value: Vasco da Gama’s voyage is the archetypical voyage to the inside of humankind: the true human paradise, where man gazes at the essence of his sublime humanity. As another Portuguese poet said, “We leave, we go, we are” (Sebastião da Gama, *Through the Dream we go*, “The Dream”, 1953).

*The Lusiads* are not only the poem that praises epically the deeds of the Portuguese seamen but also a poem that goes beyond the dimension of being Portuguese and stretches itself to the universal man, becoming the song of the real epic man, the virtual song of human condition. Spiritually man possesses the capacity of surpassing every “giant Adamastor” that may cross his path.

This is the immense lesson in Camões’ poem. Each one of us must set out their journey, sail the waves of the seas that may ravage us, and arrive, appeased by glory, at a safe harbour and we shall be “numbered among the enlightened heroes” and “welcome” on the Island of Venus.

The tragedy

The open and endless sea has been dream and adventure, but tears and tragedy as well.

“Oh salty sea, so much of your salt  
Is tears of Portugal!  
(…)  
He who wants to go beyond the Cape  
Has to go beyond pain.”

Fernando Pessoa, *Message*, “Portuguese Sea”

The Portuguese odyssey was written through lines of tragedy. The dream of the ocean, from the very beginning, has embedded us in doom and fatalism. Although the Portuguese caravels achieved, as Pessoa says, "the deserving kisses of truth", that same sea was also the "leitmotif" of our tragic maritime odyssey, the cause for crying our heart out; the awesome reason for our dark, mournful shawls… that so traditionally charac-
terized the widowed Portuguese woman in the past and still does today in the country side.

Portugal would, therefore, keep in its chronicles in spite of the grand moments of glory, the sad and dissonant lyrics which have created endless pages of suffering and despair.

Going away implies leaving behind. The tears of farewell, the absence, the longing, the perils, the death, are the dark side of life of the Lusitanian race. Camões describes human grief and the sorrow of leave-taking in this way:

«Then, breathing fix’d resolves, my daring mates
March to the ships, while pour’d from Lisbon’s gates,

(…) A scene so solemn, and the tender woe
Of parting friends, constrain’d my tears to flow.
To weigh our anchors from our native shore--
To dare new oceans never dar’d before--
Perhaps to see my native coast no more.»

Camões, The Lusiads, IV, 89,

Then, during the period of absence, the deep fear of death, the anguished doubt… and imminent dangers, and the shipwrecks…, which the giant Adamastor had foreseen:

«With every bounding keel that dares my rage,
Eternal war my rocks and storms shall wage,
The next proud fleet that through my drear domain,
With daring search shall hoist the streaming vane,
That gallant navy, by my whirlwinds toss’d,
And raging seas, shall perish on my coast:
Then he, who first my secret reign descried,
A naked corpse, wide floating o’er the tide,
Shall drive--
Unless my heart’s full raptures fail,
O Lusus! oft shalt thou thy children wail;
Each year thy shipwreck’d sons shalt thou deplore,
Each year thy sheeted masts shall strew my shore. »

Camões, The Lusiads, V, 43,44

According to historians, many of the shipwrecks which occurred and became part of our tragic maritime odyssey, were often due not so much to the appalling, tempestuous oceans nor even to the technical circumstances and conditions of the caravels, but mainly because of excessive cargo. They aimed at quick profit, showing the tackiest, shabbiest and most stupid greed.

It’s not at random that right in the middle of The Lusiads there comes the voice of one of the most enigmatic characters of our literature: the Old Man from Restelo (place in Lisbon where the ships left):

«O frantic thirst of honour and of fame,
The crowd’s blind tribute, a fallacious name;
What stings, what plagues, what secret scourges curs’d,
Torment those bosoms where thy pride is nurs’d
What dangers threaten, and what deaths destroy
The hapless youth, whom thy vain gleams decoy!

(…)
And say, has fame so dear, so dazzling charms?
Must brutal fierceness, and the trade of arms,
"The Old Man from Restelo" is like an ominous bird that pessimistically predicts the results of the Discoveries and prepares the people's conscience for the dangers of such an enterprise. It is, in the end, the voice of a life-experienced knowledge, the prophet of our sadness.

Camões, a genius in this epoch, didn't intend to give a simple and one-sided view of the reality and history of Portugal. We know the cost of vanity, greed, degradation of the values which we were subject to, through the inebriating appeal of gold and cinnamon. And so, the Old Man from Restelo stands up at the moment of leaving, letting out of his heart the ill-omened words of the decline of the nation. Just like him, we feel that there's nothing in the history of man and humanity that can be totally perfect: dream lulls man into an immeasurable thirst for power. The dissatisfaction that is part of human nature prevents him from knowing when to stop, letting the fruit of dream go rotten. That's what happened to Icarus and his fatal imprudence: the wings that have held him high above the maze, have also blurred his reasoning: fall was imminent.

And the dream leads us to

The myth

«Myth is the nought that means all»

Fernando Pessoa, *Message*, “Ulysses”

«The Myth is the engine and the synthesis of History» (Paulo Loução, ibid.)

The Portuguese people, whether through their active aspect of a dreamy and adventurous people, whether through their passive aspect of melancholy and nostalgic people, have shown themselves prone to the belief and the hope in the transcendental.

It is said that man makes History and History makes the man. Indeed the Lusitanian people have always asserted themselves by their original and independent mind. Their rebellious manner granted them their autonomy and independence. The consciousness that has enforced and asserted them as a people has always guided them. The history they have built with the dream on the one hand, and by force on the other, showed them their role in the world and made them assume that God blessed that role.

« God wanted the world to be whole,
The sea to connect, and no longer divide.
(…)
He who hallowed you, made you Portuguese.»

Fernando Pessoa, *Message*, “Prince Henry”

The myth is a powerful engine in the historical process. It has a great advantage over the purely rational construction because it affects man in his whole, accessing not
only his intellect, but also touching his heart, stimulating his will. The assumption of mythical literature manifests itself in all its vigour with Fernando Pessoa's *Message*:

> «Myth is the nought that means all. The very sun that opens up the sky (...) And so does legend flow Across the threshold of reality And enriching it, runs forth. (...)»

Fernando Pessoa, *Message*, “Ulysses”

In a poem entitled "Count Henry", the human action is presented as deriving from divine will.

> «Every outset is involuntary. God is the agent, The hero watches his own actions, confused And unconscious.»

Fernando Pessoa, *Message*, “Count Henry”

This idea is magnificently synthesised in the following line:

> «God wishes, man dreams, the work is born. »

Fernando Pessoa, *Message*, “Prince Henry”

Man is the instrument of God's will. Chosen and blessed, he will confidently accomplish his mission because it is inspired by God. The chosen man or the chosen people must know how to listen, how to interpret the omens. The hero must know how to scan the distant signs which are the manifestation of the mythical call. Then, by acting, he must assume the value and the role of his mission. In the poem "The Bogey-beast", already quoted, the helmsman is the hero who represents the collective: the Portuguese people and the will of their king. The fear felt by the helmsman is transformed into bold courage and the helmsman overcomes it, exceeds himself because:

> «Here at the helm I am more than myself: I am a People who wants the sea that is yours; And more than the monster, that my soul does fear And dwells in the dark of the end of the world, Commands the will, that binds me to the helm, Of King Don Joao the Second!»


It is exactly by overcoming his known limitations that the true hero emerges and manifests himself. The near and distant sea was an invitation and a promise: a mission God commanded should be accomplished:

> «God wanted the world to be whole, The sea to connect, and no longer divide. He chose you and you went forth unravelling the foam...»

Fernando Pessoa, *Message*, “Prince Henry”
This was the Portuguese enterprise, blessed by God. This is the "accomplished task" Diogo Cão, a Portuguese discoverer, refers to in the poem "Padrão":

« And to the vast and possible ocean
Tell these escutcheons you see
That the bounded sea may be Greek or Roman:
The sea without bounds is Portuguese.»

Fernando Pessoa, *Message*, “Padrão”

For Fernando Pessoa, the idea that the work is not finished is especially important. According to this poet, the sea voyages may have been some kind of first trial for the heroes in their long process of learning and maturing. Portugal should get ready for its next voyage. That is why the poem "Prayer", a new, authentic mythical appeal, concludes with the exhortation:

« And again shall we conquer the Remoteness-
Of the sea or some other, but let it be our own!»

Fernando Pessoa, *Message*, “Prayer”

After having exceeded the horizons, it was time for Portugal to think about the future:

«The Sea was accomplished, and the Empire was undone.
Lord, Portugal is yet to be accomplished!»

Fernando Pessoa, *Message*, “Prince Henry”

**The nostalgia**

That capacity of dreaming the adventure and of fulfilling it by leaving created, little by little, a feeling, deeply rooted in the innermost of being Portuguese. Nostalgia of leaving, nostalgia of being absent. It is within this reality that the Portuguese soul profiles itself: the genuine feeling of the Portuguese soul was born from the dialectics of leaving and of staying; and so was the attitude that traces its restless mind: the "saudade" (nostalgia) - a word without parallel in the other languages.

Teixeira de Pascoaes (1877-1952) created the philosophy of the race – “Saudosismo” and proclaimed a doctrine for it in the first quarter of the 20th Century:

“The Lusitanian sadness is the mist of a religion, of a philosophy and of a State.”
“We are indeed the only people who can say there is a word in their language which cannot be translated into other languages and which bears the entire meaning of their collective soul. The Lusitanian soul concentrated itself in only one word, and in it there exists and lives, as in the tiny dewdrop, the image of the immense sun.”

The absence and the separation from the dear ones move the desire. And thus, «desire and pain melted in one feeling alone are the "Saudade" (Nostalgia)»

---

3 a stone pillar topped by a cross beneath which was engraved the Portuguese coat-of-arms to mark newly found lands.
There is no great Portuguese poet - Pascoaes goes on - who does not dramatically live this Nostalgia. (...) The eternal Sebastianism of the Portuguese soul and its transcendental and poetic attitude before the infinite Mystery!

Nostalgia is thus continuously sung by all Portuguese poets, from the most ancient to the most modern. Pain and Desire melt into Nostalgia. Nostalgia is then, sadness and, as a result, the Portuguese people have been traditionally described as sad and melancholy.

A history made up of departure and separation justifies the feeling of nostalgia. It justifies the fact that it is so genuinely part of our way of feeling. Leaving was originated in our geographical location; nostalgia is the emergent feeling of that departure and that absence, in a word, of our condition. They have both shaped our being.

Absence

If, entranced by the indefinite of the vague distance, we have built our dream and, thrilled by the action, we have departed, we have also stayed behind, our stagnant eyes looking on, quiet, leaning against the great deeds of the past and waiting...

Consider this quotation from a 19th Century speech:

«The discoveries that so brightly crowned the end of the 15th century have not been made by chance. They were preceded by an intellectual effort, as scientific as the times allowed, begun by our Prince Henry (The Navigator) at that famous school of Sagres, which educated men such as the heroic Bartolomeu Dias, whose influence, directly or indirectly, produced a Magalhães (Magellan) or a Columbus. It was a wave that raised here and grew until it broke on the shores of the New World. People saw what the peninsular intelligence and energy could accomplish. That is why Europe regarded us as a most influential power. (...) Our mistakes, however, did not allow that influence to be long lasting and advantageous. This movement was represented among us by only one generation of superior men: the first one. The following generations, who should have consolidated it, were fanaticized, numb, impotent; they were unable to understand or execute that spirit so high, so free. They either ignored it or they fought it. (...) From that bright world the peninsular genius had created in its free expansion we have moved almost without transition into a dark, poor, and nearly unknown world. We may say that between the two worlds lie ten centuries of decline: yet only fifty or sixty years were enough to perform that change. In such a short period of time it would have been impossible to have walked faster down the path of dishonour.»

I have permitted myself this long quotation from the speech Antero de Quental pronounced in the evening of 27 May 1871 in the conference room of Lisbon’s Casino because it explains the inertia that submerged the Portuguese people shortly after their days of national glory.

This decline of the people, who had had Europe at their feet, is the other side of the Portuguese man. And here we cannot mention unhappiness, sadness, tears or melancholy. No; what is meant here is absence, absence of ourselves, absence of our soul. That is why the hero-poet will already say at the end of his song:

«Enough, my muse, thy wearied wing no more...»
The Lusiads were the enthusiastic song of Man, in general, and of the Portuguese man, in particular, in his ceaseless search for the unknown, excelling himself if he had to; but at the end of the poem, Camões, addressing directly his contemporaries, accuses them of being "on the old noble tree trunks of their predecessors", living on "golden beds", eating "new and exotic foods", forgetting themselves in "indolent and idle walks". The noble heroes of the past - of whom the narrative is an example - had irreversibly left their place in History. And their pace was not taken... Camões knew this already, better than anyone else, or were he not the voice that the future would keep for our patriotic conscience.

Camões' time was the beginning of a new era - an era of forgetfulness, of sleepiness brought about by the pompous villainy of material values. That is why it was urgent for him to mention the glorious memory of that recent past (which contained the boldest objectives and reward of the search for the new world) so that, by contrast, he would wake up his contemporaries and his rulers of the lethal lethargy they had fallen into. Camões' epic was an alert banner, a sign, a reprimand message and a hopeful one at the same time: the maritime feats of the past would have to become the new route for the future.

«Lord, the night has come and the spirit is low. So great was the storm and the strife! What is left to us today, in the hostile silence, Are the universal sea and a yearning.»

Fernando Pessoa, Message, “Prayer”

Not even Camões in The Lusiads tells us of the seamen’s homecoming. In a poem of about one thousand stanzas, the great bard summarizes in one, only one stanza which is forcibly not very clear, the route back home and the moment of the arrival.

«And now their native fields, for ever dear, In all their wild transporting charms appear; And Tago’s bosom, while his banks repeat The sounding peals of joy, receives the fleet. With orient titles and immortal fame The hero, band adorn their monarch’s name; Sceptres and crowns beneath his feet they lay, And the wide East is doom’d to Lusian sway.»

Camões, The Lusiads, X, 144

Our history was written: voyage and risk, long absences, religious persecution, colonization and war, emigration and exile. Absence from ourselves! The feeling of absence, the feeling of a self dissatisfaction started to be shaped, to be felt and to be deeply foreseen. «Saudade» (longing) has been the mark of our Weltanschauung. We left and became heroes. The heroes departed and have not come back: there was no fatherland to welcome them back. And the heroes and their deeds faded away. They have remained forgotten for a long time. Only poets have sung them and especially
without Camões every hero would have perished in the lines of our tragic-maritime literature.

It is high time for Portugal and the Portuguese to say with Pessoa:
   “Portugal is yet to be accomplished!”

References

VI Religion and Culture
9. Using Religion as a Platform to Promote Discussion in Teaching
School Law and Policy Development

George Foldesy and David Holman
Center for Excellence in Education
Arkansas State University
Jonesboro, Arkansas

In America the expression goes, “don’t talk politics or religion among friends especially if you want to keep them as friends.” Although both topics are highly controversial, provocative and sensitive, politics is routinely discussed in the classroom. However, the infusion of religion into the school setting is much more troublesome and has kindled considerable debate while fueling an onslaught of litigation.

When it comes to religion, there are three main groups (in the context of this paper), two of which are the most vocal and whose ideology is diametrically opposed to each other. The first group, Believers, is highly committed to God, some of whom are fundamentalist and evangelistic. God is the essence of their being. The Non-believers are the second group who do not believe in God. “There is no God” is the mantra of the Non-believer. A third group, the Silent Majority, most likely accepts God and is more passive concerning their religious faith. However, they may be incited by those whose ideology threatens to dominate the school culture.

The convictions of each group, which differ considerably, create the platform for discussion in the School Law and Policy Development course. The desired effect of examining the topic of religion is to consider the opposing views of the students enrolled in the class, discuss the relevant issues related to religion and draft a policy that ideally does not compromise individual values while fulfilling the requirement of the law. The use of religion as a topic for policy formulation works well since it generates considerable discussion due to the fact that many of the students are highly committed to their beliefs and have difficulty compromising these values.

The purpose of this paper is to explain how religion is used to facilitate the end goal of policy development. This manuscript will describe the trials and tribulations encountered by the students as many re-examine how their beliefs impact themselves as well as others. A description of how their personal views will be translated into a viable policy that respects the dignity and beliefs of all people will be illustrated in this manuscript.

As previously mentioned, the culminating or capstone project for the class is the development of a policy that respects the religious beliefs of each individual and is acceptable within the confines of the law. To facilitate policy formulation, a rubric with three domains has been developed to serve as a guide. The first domain is identified as the context which is defined as the background, environment and circumstances that have led to policy development. The second category is classified as the text which defines the actual policy itself or the language that is used to convey the meaning of the document. The third consideration centers on the consequences of the document or what is predicted to happen as a result of implementation of the policy. An individual’s similarities or differences related to personal values, understandings and experiences shape the discourse and serves as the foundation for policy formulation.
The passion that engulfs religious beliefs provides fertile ground for the ensuing controversy as the class debates the context of the policy. Those students who possess a strong religious belief often feel that the class discussion is an opportunity to evangelize. As I am told by many of my students, this responsibility is found in Matthew 28:18-20 which states:

18. And Jesus came and spoke to them saying, “All authority has been given to Me in heaven and on earth.”
19. “Go therefore and make disciples of all the nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit.”
20. “Teaching them to observe all things that I have commanded you; and, lo, I am with you always, even to the end of the age.”

Amen.

These students are also of the mind that religion provides the moral compass that is used as a guide to live Christ-like. Therefore policy should be an extension of this belief and provide guidance as to which behaviors are acceptable or unacceptable. Concurrent with this belief is the notion that ignoring the tenets of religious teaching would be a direct cause or in the very least provide opportunity to allow the unacceptable to flourish.

Doctoral students comprising this group often encourage activities such as morning prayers or a moment of silence, participating in the flag salute, teaching of evolution, prayers at school activities and ceremonies, and generally applauds the infusion of Christian beliefs into the curriculum. For these students, it is quite acceptable for teachers to post the Ten Commandments or to ask for a moment of silence when deemed appropriate.

In addition to encouraging a variety of religious activities, Believers often discourage the teaching of specific content and continuation of activities that are categorized as being contrary to their religious beliefs. Examples may include the elimination of topics such as the evolution, sex education, and literature considered to promote promiscuity.

For those who are evangelistic, the goal in policy formulation is to infuse religious beliefs into the document while eliminating those aspects that may be detrimental to their religious beliefs. This position is often uncompromising and characterized by the attitude that “I will never give up my faith in Jesus Christ.”

The Non-believers are philosophically opposed to the Believers. Characterized by lack of belief in a formal religious structure, these students often take offense to what is perceived as evangelic fervor and rhetoric that permeates the classroom. Non-believers reject the notion that schools should limit curriculum because it may be offensive to one’s religious beliefs. It is further believed that a student’s horizons should be broadened and in order to do so, exposure to a wide variety of materials and activities is key to successful learning environment.

This outright rejection of infusing religion often collides with those of the opposite point of view. The strength of the interaction is dependent on the personalities of the students involved. The Non-believers are often use established law to support their position. Any misinterpretation of the law generally favors their point of view, such as removal of the bible from the library or that a course in religion cannot be taught in the school – when in fact this is not legally accurate.

If these three groups are placed on a continuum, obviously the Believers would be situated at one end of the spectrum while the Non-believers occupy the other extreme. The third group, the Silent Majority, occupies the middle range. However, giv-
en this position, some in this group lean more toward those with a religious bent while others are more philosophically tuned to the Non-believers. These individuals are much more moderate in their beliefs. Many find their colleagues to be extreme and often dismiss the intensity presented by either or both groups. The contribution of the moderates in the classroom setting is one of creating a balance to the debate and adding stability to the dialog by bringing the conversation back to center.

Generally speaking, Silent Majority is not as vocal as the other two groups and initially are often comfortable listening rather than contributing to the discussion. Although this may be a function of not wanting to be rude or disrespectful, they will engage in debate if either of the other two groups offends their sensibilities or is perceived as extremist.

The characteristics of these three groups set the stage for class discussion. As the debate continues throughout the academic semester, each student is required to substantiate and justify their position using the professional literature and case law. As the deadline nears, generally the opinions of each group soften, compromises occur, and the final draft is produced. At the end of the course, two outcomes become obvious: (1) the vast majority of students have become more sensitive to the views of their colleagues; and, (2) each student has a working knowledge of policy development.

Using religion as platform for discussion provides students with a realistic portrayal of the forces that shape policy. Since religion is embedded in the fabric of American society, strong opinions exist concerning the separation of church and state. Because feelings are so strong and sentiments concerning religion are personal, doctoral students become fully invested in carving out policy that preserves their freedom to worship as they please or not worship at all.
10. The Tale as Source: Concerning the Value of Narratives in the Teacher's Training Programme

Nick de Wilde
University of Applied Science in Holland, Department Education, Theology and Life Philosophy

Introduction

In our training program we train students to become teachers in the subject of religion/life philosophy. Within our curriculum ‘narratives and tales’ plays a substantial role. We believe it is essential that students develop a vision and learns to work with topics, images, motives and characters from several philosophical traditions. Consequently we have a duo role: teaching students to listen to (life) narratives and teaching them to use (tradition) narratives as a tool to bridge narratives and life. With this article I will argue for explicitly involving narratives in the formation of (religious) identity.

In the beginning there was…. the tale. As far back as I can remember this is how readings started at my home whether I was reading or I was being read to. These were not just bedtime stories. After meals there were bible readings. Day in and day out I heard tales of the people of Israel, of their kings, of their prophets and of course of Jesus and his followers. Occasionally these stories came from a children’s bible, but generally from the “regular” bible. These tales were reinforced by the biblical history at primary school.

To this day I carry those tales with me. At the same time I am aware that the contents of these tales stuck with me because later I myself continued to be influenced by these tales. What remains from childhood times is the atmosphere. A seed had been planted from which later a reader grew.

No tale?

Since the last century - according to post-modern thinkers - master narratives have disappeared. All master narratives lost their meaningfulness. Common ground is lost. Although there are no master narratives anymore, people still search for orientation and inspiration in their lives. They seek and find these less and less within traditional life sciences and religions. Even traditional narratives have lost their naturally obvious strength and religious organisations have become less important. (Post)modern people constructs their own identity. Alii (2009, 45, 105) speak respectively concerning narrative identity and narrative identity development. There are no readymade blueprints (more) for who you are, what you believe in and how you must act. One must make his own choice and derive from the available sources and traditions within our plural-

---

4 University of Applied Science INHolland, department education, Theology and Life Philosophy
5 Here it’s not about what we understand under the term ‘master narratives’. For example Lyotard (1979) used the classification of the emancipation of reasoning (enlightenment), the emancipation of the state power (democracy), the release or emancipation of working people (socialism, communism) and the release from the poverty (capitalism). Beside the term ‘master narratives’, the term ‘life and tradition narratives’ was also used. A term that refers to subcultures tales, a life tale is also part of this.
istorist society (Ricoeur, 1992). Identity development has become identity construction (Taylor, 1989).

**To what do narratives serve?**

If there are no master narratives to lean on and a variety of life narratives materialise we have to tackle the question: what purpose do narratives serve? Allow me to start with a quote from Marcel Möring (1997, 85). A character in his book says: "The only manner to understand the world", said Magnus once upon a time, "is by telling a tale. Science", said Magnus, "only brings knowledge of the functioning of the things. Tales bring understanding."  

People tell each other tales to give meaning to their experience of reality (Brunner 1990 and 1996, 1-43). People tell tales to link loose facts of life. A tale gives order. A tale firstly consist of small, seemingly loose words: i.e. the toddler who sits at the front of the bicycle and points at objects and names them. This is how he get to know the world around him and by tales makes connection between the neighbouring surroundings and himself. Little words become sentences, sentences become tales.

Knippenberg (2005) emphasise that people also tell tales to be able handle time: in tales they can hold on to the past and anticipate the future; tales are instruments of the memory and of imagination. This natural function does not only applies to life narratives. Tradition-narratives still arrange, links and give sense to life experience.

With the question ‘to what do narratives serves’ we face two challenges. On one hand to give meaning to a narrative. In our society we use more logical-argumentative language in stead of narrative language. From this attitude the next line of thinking exists: narratives are only ‘stories’ and stories are not true, they have no meaning. On the other hand to help to make clear the connection between master narratives and life narratives.

To meet the first challenge I’d like to focus on the word *myth*. For this I make use of Frye (1983). The word *myth*, in popular language usually indicates incredible tale, a tale that isn’t true. The word evokes thoughts of gods-tales and folks-tales. Modern people consider such stories as not credible. In this sense the word *myth* is related to the term *tale*.

According to Frye the word *myth* indicates something else, namely an unique form of expressive and creative thinking. Mythical language is expressive language, mostly used in the field of religion and life philosophy. For Frye (1983, 73 ff.) saying that ‘the bible tells a tale’ and ‘the bible is a myth’ are identical. He re-calibrates the word *myth*. Myths are tales which are charged with a special seriousness and meaning and form in their mutual connection a mythology: ‘A mythology which roots in a certain society, passes a heritage to common allusion and verbal experiences on trough the course of the time and this way mythology helps to create a cultural history.’ According to Frye mythology creates culture-history, that is to say a vision on history. And what we call literature, is a descendent of the mythology because literature, especially poetry, functions (again) to bring to life the metaphorical use of language. This re-calibration of the word *myth* is necessary to be able make clear the distinction between life tales of people from different places and times and mutual connected narratives which have left their own track on founding enlightenment in a culture.

---

6 For misunderstandings not to occur, this is not a plead to exchange the scientific approach for narrative. Knowledge must be joined with life. This also applies to the profession theology and life philosophy. Next to narrative stands knowledge. Each has their own functions.
In our Western cultural history there are two fundamental mythologies that have influenced the origin and the development of this culture. These are the Jewish and Greek-Roman traditions. Both have produced a mythology which has during a time of enlightenment thoroughly influenced the design of Western culture. Both have created a canon which is based on fundamental mythical narratives. These narratives have been repeated infinitely in the development of literature, expressive art and music. It has especially been the poets who from century to century have awakened the metaphorical strength of images, words and motives. But also the topic from these fundamental narratives have been reused from time to time in a new narrative, with another order of events, with a another perspective and with other personages.

Next we face the challenge of laying a connection between tradition-tales and life tales. Roebben (2007) can be helpful with this. He shows that the attitude to the tale depends on age.

<table>
<thead>
<tr>
<th>Judging by the first naivety</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Young children listen to and experience tales</td>
</tr>
<tr>
<td>2. Children approx. 10-12 years</td>
</tr>
<tr>
<td>3. Pre-adolescents</td>
</tr>
<tr>
<td>4. Adolescents</td>
</tr>
<tr>
<td>5. Young-adults experience of its own fragmented narrative identity, moving between desire and vision.</td>
</tr>
<tr>
<td>6. Adults entrusts itself to the carrying ground of the existence</td>
</tr>
</tbody>
</table>

**I am a part of the tale**
- I stand opposite of the tale
- I abolish the myth of the tale
- I deconstruct the tale
- this tale is in search of a narrator and that is I
- I abolish the myth of the tale

Ending in the second naivety

Whether we start with the life tale or with the tradition tale, both tales justify themselves in their communicative confrontation. From that communicative confrontation a perspective emerges. Through telling people attain an (religious) identity they can place everyday events in a larger link. By tales one is able to grow.

(...) I urge of you patience with everything in your heart that hasn’t reached a solution yet and hold the questions dear to you and see them as inaccessible chambers and as books written in a completely unknown language. Don’t seek for unattainable answers, because you would not be able to live with them. And the point of it is to live everything. Screen your questions now. Perhaps one day

---

7 Roebben speaks here about the first and second naivety. These terms are from Ricoeur. The first naivety is unscientific, mythological thinking, for enlightenment. We cannot - according to Ricoeur – return to this, that would be a romantic idea. "The second naivety are not the first naivety, it are post-critical and not pre-critical; it are an informed naivety (Ricoeur, Freud and philosophy, 496). The second naivety is richer than the first; the openness for the wealth of the things such as people who experience spontaneously their perception, has been enriched by the critical attitude of science and the boldness which one gets after enlightenment.

95
as you are going along life road without even realising, the answer just comes to you. (Rainier Maria Rilke, Letters to a young Poet. De Haan, Weesp 1985, 21)

Hermeneutical competence

The ability to connect a tradition tale with our life we call - in our department - a hermeneutical competence. Implementing this competency assumes an active interaction with sources of enlightenment. In our times, a certain frame of reference seems to be more and more absent. Within the programme we present the existing cultural heritage broadly, critically and as openly as possible, and we stimulate the students to justify for themselves an appropriate and qualitatively manner. For this we train the students to be capable of dealing receptively and personally with texts from out a broad diversity of traditionally narratives. Moreover we want students to distinguish and improvise cultural topics in a creative and renewing manner. The student learns to recognise and link existential questions in these tales and connect them afterwards with enlightenment motives. In practice that can mean that those enlightenment questions and motives are religiously linked explicitly; but also they can be understood philosophically without religious cargo.

An example of this is ‘the travel of the hero’. A tale concerning ‘leaving’ and ‘coming home’. The hero sets off voluntary or involuntary. On his way he encounters all kinds of challenges and is faced with dangers. Sometimes he survives this, sometimes he is covered and he descends to death. During his travel he has both allies and antagonists. If he reaches his lowest point he is subjected to a last tribulation and conquers his reward. The last task is that of returning to normal living. This can be both the location one left (odyssey-motive, paradise-motive), and a new location (exodus motive). Frye (1983, 274) speak of U-tale.

Depending on the target group, expression can be given to transcendent or general universal motives. The themes can also be encountered when listening to life tales. Does the hearer recognise transcendent or the universal topics and aims in these tales and which one does he or she adopt?

Inauguration and sensitisation

We find ourselves with the question: How do we instigate the cultural inheritance derived from mythical tales? How can tales be picked up again? As mentioned before, it is impossible within current (post)modern society to assume that traditional tales comes naturally. Students must be taught to handle master narratives from philosophical traditions. They must learn to see connections between old mythical and contemporary metaphorical texts, only then are they able to interpret a meaningful mutual consistency. Moreover it is important to make students more sensitive to the functioning of tales and poetic reality.

---

8 One of the competencies with which we work within our programme is the hermeneutic competency: the capacity to interpret mutual meaningful consistencies between on one hand the sources of the religious tradition, community and/or organisation, which he/she represents and on the other hand people in its/its current context. Cited from: Een professional met diepgang. Domeincompetenties voor de Bachelor of Theology, Landelijk Overleg Opleidingen Theologie, Ede 2006; although the hermeneutic competence is not mentioned in the general SBL-competencies for teachers, however, it is mentioned in the handout for religion/life philosophy as examination (May 2006), p.7 and p.27
The thinbridgewonder
The first two boats passed smoothly
but the third was a deeply charged barge
which approached so slowly that (gift Karin
pasta, cream, beans, plumber bells)

Suddenly the barge doomed nearer
and I see that it is entirely filled
with water that flows in jumpy waves
from over the dark wide borders

Above people awaiting
the exhaustion of the working day has developed
into an almost visible bouquet of text balloons

Entwined in ideas and heavy bearings
we fail to see that from the barge
all of Amstel’s water surges
incognito the source of the river floats beyond
K. Michel (Uit ‘Waterstudies’ (1999)

An attentive and justified manner of handling texts and an approach which is arranged for our students can be found in the hermeneutic of Ricoeur. In his approach to texts, he recognises two movements: a movement where the reader appropriates to himself the text on the basis of recognition or by affirmation, and a movement where the reader holds his or her stand against the text because there is alienation or disregard. In this double movement lies a possible creative opportunity for the reader in dealing with the text. The contents of a text is appropriated, however not only so that the text merely can confirm the emotion or the personal vision of the reader. This hermeneutic also makes it possible to let a tale or a poem be a critic.

When first reading the poem quote above, one sees oneself standing in front of the open bridge, with thoughts of the daily bearings. The alienation arises at the last sentence - the mystery of the source -, and, as a result, one will automatically read the preceding again. What occupies us awaiting? Where are we with our thoughts? Swallowed up by the daily bearings we miss the ‘source’.

Within the framework of (philosophical) conversations the same double movement takes place. The moment of understanding is always a weaving of recognition and disregard. Whatever the tale from another may stir, it is and remains of that other. Even so, confrontation can be initiated with another tale. Tools serving the professional, are among other things, methods for changing perspective. The use of metaphors, and the encounter with nasty bursts and tears in one’s tale, may result in one gaining a vision of another or new tale.

The particularity of tales is that they always are connected with life experiences, and, at the same time, tales are polyphonic and poly-interpretable. This makes it a very interesting adventure to summon young and older people to respond to the appellation of the tale. Becoming sensitive for the strength and functioning of tales is a cognitive and affective process, in which the students gain new vision on the choices made by prior, social interpretations concerning the basic topic and the central value(s) in the tale. Drama, music and performing art helps in understanding expressions of art and culture in life philosophy. Different conducts (Van den Berg e.a. 2007) help to experience the dynamics of the tale. Thus the feeling for the strength and the restrictions from delivered tales can be transferred.
If the own (life philosophical) biography is used it can thereby reinforced this feeling. Looking from the bibliodrama perspective: if a student finishes, with the use of a tale (myth), rein acts a question from its own biography, and in this adding responses from our time and our culture to the tale, can make philosophical topics very powerful.

**The strength of tales**

Whenever the great rabbi Israel Baal Sjem-Tov notices that unhappiness begins to weave a net over the Jewish people it was his habit of retreating to a particular place in the forest to meditate; there would then light a fire, recite a particular prayer and the wonder attracted itself; misfortune was rolled off. Later, when his student, the famous Maggid van Mezritz, needed the mediation of the sky for the same reasons, he too travelled to that place in the forest and spoke: Lord of the universe, listen to me. I don’t know how to light a fire, but I can recite the prayer. And the wonder executed itself. Rabbi Mosje-Leib of Sassov later gave in also and went into the forest to save his people and spoke: I don’t know how to light a fire, I can recite the prayer, but I know the place and that must be sufficient. And that was sufficient: here too the wonder executed itself. Then it was rabbi Israel of Ritzin’s time to ward off the threatening misfortune. In his chair he sat folded his hands in front of his face and spoke to God: I can light no fire, I do not know the prayer and I cannot even find the place in the forest. All that I can do is tell you this tale. And that in itself must be sufficient. And it was sufficient. God created people because he loves tales. (from: Eli Wiesel, the Gates of the Forest (introduction)).

In the above the tale is necessary in order to execute the wonder. We hope to bring about the wonder of the functions of the tale in our students. During the telling the tale the student finds his or her own tale as source leading to an independent professional identity.

**Literature for further reading**


VII Science Education
II. A Live Animal in Your Classroom

Mart Ottenheim
The University of Applied Sciences "Hogeschool Leiden"
Leiden, The Netherlands

Abstract

Working with live animals in the classroom requires specific skills of the teacher. Special care has to be taken to which animal(-s) is brought into the classroom and to the preparation of the children for this visit. After the introduction the animals is brought into the classroom and the children are invited to explore and experience. In the evaluation phase the animal is brought out of the classroom to facilitate a good review of the experiences.

Introduction

When students are asked what biology lessons they remember; almost always someone mentions a lesson with a live animal. Such an experience makes an important imprint on the students. Often the animal was a vertebrate because it appeals to us. Working with live animals has the advantage that the students are involved with the subject because there is a new and interesting situation in the class room. In a normal lesson about an animal the teacher can teach knowledge (like the habit or life cycle of the animal) and skills like research skills. But when a live animal is used in the classroom one should not talk about the animal but engage with the animal to experience it in an interactive way. And in that experience the benefits of a live animal in the classroom emerges. Take for example the rabbit:

The rabbit is a popular pet for all children in primary school. But it is also a popular animal in petting zoos. It is soft, appealing, and it has large eyes. On the Internet and in many books, much information about the rabbit can be found. The wild rabbit has a grey fur that acts as a perfect camouflage. It needs this camouflage because any other coloured individuals get preyed upon. When foxes are absent black rabbits can also survive. The rabbit is NOT a rodent; it belongs to the group of the lagomorphes together with the hare. Its teeth keep on growing throughout its life and feeding it hard food is essential to its survival. The rabbit produces two kinds of dropping: the rabbit eats the first kind directly from the anus and leaves the second kind. Several animals are known to do this to enhance the digestion of plants. Rabbits live on sandy soils in which they dig burrows that always have a front entrance and several back entrances. When a rabbit digs a burrow in soil that is not sandy, the burrow may collapse or fill with water. These soil conditions constraints the habitat in which rabbit can live.

All this information can be found in books and on the Internet. A teacher would like to supplement the information with pictures or films to show how rabbits live in the wild and what place they have in the ecology. All this knowledge is extremely un-stimulating and generally will not stick in the memories of the children. The children need more scaffolding to support this information. Hence it is desirable to use a live
rabbit in the classroom and get all the knowledge to stick on the real animal. Children find rabbits extremely cute and can experience real love for the “fluffy little darlings”. At the same time questions can be explored like: “what kind of food is preferred by the rabbit?” Chewing gum, salad, bread or carrot? When children engage with animals with respect for the welfare the animal and with curiosity, a deep bond with the animal and nature in general, can be forged. This results in more respect for the environment and more environmental sustainable behaviour.

Which live animal?

In the perception of a child, if not all people, there are two kinds of animals: cuddly and fluffy animals and the rest. Cuddly animals include: rabbits, guinea pigs, hamsters, ducklings and chinchillas. Among the rest are rats, snakes, worms and insects. The latter are not often seen as an option when a live animal in the classroom is considered. Cuddly animals however can be quite disappointing. Rabbits tend to be passive, like hamsters they will sit quietly in a corner or trot around. On arrival, chicks may not appear to be the fluffy yellow birds one expects but are half-grown chickens that are changing their fluffy feathers for new adult feathers. Chinchillas cannot be let loose because they jump in all directions and will be hard to capture again. Non-cuddly animals are actually more interesting. Earthworms have a longstanding reputation in classrooms and many lessons have been designed around them. In these lessons the child learns how the worm is moving and how it feels and earthworms in a wormarium show the children how the worms dig into the ground. The importance of the worm in the ecosystem and in the garden can be taught. Even with an earthworm there is much to experience and it will be guided by amazement. Nobody really takes a good look at a worm but it is fascinating to see it crawl on the ground and dig into ground. The movement of the worm can be studied by putting a worm on a glass plate in a drop of water.

The most popular animal in many schools is the snake. Beforehand students and many pupils consider snakes to be scary or dirty. Some people are truly frantically afraid of snakes. Confronting people with their fears, however, is not a goal in teaching with living animals. Children are generally not afraid of snakes. The behaviour of the adults and statements like: "don't be afraid" or “it will not hurt you" will however put ideas in the minds of children: “Maybe I am supposed to be afraid.” Of course the snake will not bite you, otherwise it would not be in classroom. Of course it is not a poisonous snake, otherwise it would not be in classroom! These questions can however present the opportunity to talk about different hunting strategies by snakes. The advantage of a snake in the classroom is that not many children have allergic reactions to snakes. A snake is always interesting and exciting, even if it eats nothing.

Which animal to choose?

It is best to choose animals that are familiar to the children like pets and farm animals. Furthermore animals that are strange, exciting, or exhibit interesting behaviour are a good pick. The main reason for getting an animal in the classroom is to study its behaviour and to establish a connection with the animal. When the animal is young and somewhat hungry, it shows more interesting behaviour. Suitable for all age groups are snakes, rats, chickens and goldfish. Rabbits and guinea pigs are well within the worldview of young children. For higher grades invertebrates such as worms, snails, crickets, meal worms and stick insects are fascinating. If you want to work with inver-
tebrates for a group of younger children, it is better to go outside and have the children discover the "creepy crawlies" for themselves.

**Which animals not to choose!**

There are limits to the size of the animal in the classroom. Cows and sheep are too big for a classroom. Many will be tempted to bring a dog or cat to school but these are not good choices. Dogs are generally good natured and friendly animals that many people deeply love. But when a dog is "attacked" by thirty pre-schoolers the response of the dog is hard to predict. The last thing we want is for a child to be bitten. Most cats will completely panic when they are introduced in the classroom. That is not respectful to the cat. The animal is a guest in the classroom and we are responsible for its wellbeing. To summarize, don’t choose animals that are: too big, dangerous, uninteresting, get easily frantic or are outside the interest of children.

**A lesson structure**

The structure of a lesson with a live animal is not much different than that of other lessons and the structure here loosely follows the 5E instructional model (Bybee, 1997). However, the organization of a lesson with a live animal is more complex and takes a significant portion of the attention of the teacher. The lesson has the normal structure of: engage, explore, explain, experience and evaluate but the teacher explains relatively few things since exploration and experience are the main goals. To have a maximal learning effect the lesson should be embedded in between related lessons. The phylogeny of the animal kingdom is a key objective of Dutch primary school curriculum. For example children should know the difference between mammals, birds, reptiles, amphibians and fish. A lesson on the phylogeny of vertebrates can be followed up by a lesson with a representative of one of the groups like the reptiles. It will be much clearer to the children what a dry, scaly skin is and how it feels like, after holding a snake. It is not slippery as most people think and it feels quite nice. After the lesson with the snake new information can be shared like: where do snakes live; which species of snake can be found in our immediate area or close by; should you be afraid of these snakes and what is the life cycle of the snake?

**Engage**

The lesson starts without an animal present in the classroom. It is somewhere else waiting to come into the classroom. This is done to keep the attention of the children on the teacher. During the introduction it will be announced that you will be working with a live animal and that everyone has to follow rules for the benefit of the animal. These rules must be communicated clearly to the children and they must understand that if the rules are not followed the lesson will stop. These rules must resolutely be maintained. The animal is a guest in the classroom and the welfare of the animal comes first. It is not good for the animal when the children frighten it. The animal can display strange behaviour or may even bite. All animals bite (including ladybugs), but only if they are provoked.
- “Everyone stays in place until the teacher indicates that you may get up and come forward.”
- “There is no shouting or screaming. We are quiet so the animal is at ease”.
- “We make no sudden movements.”
- “When we touch the animals we treat them with respect. Do not squeeze, pinch or otherwise challenge the animal or the animal might bite. As would you.”

In the introduction, the existing knowledge of the children is activated. What do the children already know and what are preconceptions of the children. It is useful to have the preconceptions written down or drawn in advance. During the core of the lesson they can compare that ‘mental’ picture with the real animal and add and improve their preconception.

A convenient classroom arrangement is a number of tables in the middle of the room and a U-shape of tables around it. Children should be able to move easily around the U-shape to explore the animal or assist the teacher. The U-shape also act as a barrier so that children can not suddenly walk up to the animal. Another advantage is that children do not have to feel threatened because there is a barrier between the animal and themselves. The table in the centre should be made more attractive to the animal with a cloth, hiding places and branches, preferably made together with the children.

Another focus in the introduction is the removal of fear. Many people are afraid of snakes or spiders but fear of chickens or even rabbits is common too. It is a new situation in the classroom, so the children (or adults) are frightened of the unknown. They want to know what to expect. Not all fear can be taken away but explaining what is going to happen takes away most fear. First, the teacher should be familiar and at ease with the animal in the classroom. Any uncertainty of the teacher will rub off on the children. Then prepare the children for the behaviour the animal might display. Most animals find the tables too high to jump off and one meter is often too far to voluntary jump. If the animal is a chicken, it probably will not fly, although it can. A common question with snakes is: "Is it a poisonous snake?" The answer is obviously "Of course not, it would never be brought into the classroom." If a child in the classroom is still very afraid, have them sit in the back of the classroom as far as possible from the animal and near the door so the child can stand in the corridor. Make sure that the child knows that when it leaves the classroom it cannot come back and the door will be closed. For the welfare of the animal and children it is important to ensure that rules are implied with.

Exploration and experience

It is not the aim of a lesson with a live animal to explain much (one of the five E’s). It would hamper the experience and exploration of the children.

After the introduction and after the rules have been mentioned again the animal is revealed or transferred. During the exploration and experience phase, the children explore and experience the animal in a structured way. This structure can be given by work sheets or by an interaction between child and teacher. In the latter case the teacher continuously challenges children to ask questions that can be answered by either the animal's behaviour or by observations by the pupils. Some animals will be familiar to the children but it is up to the teacher to stimulate and challenge the children to keep asking questions and keep being inquisitive. Often children are not accustomed to observing the behaviour of animals, a child (or adult) does not see much. The teacher should give clues about the behaviour or stimulate certain behaviour. Each animal will explore its new environment. Mammals often do that by sniffing. A snake’s tongue will shoot in and out to catch smells. Using an ethogram, children can
score which kinds of behaviour are seen. Instead of a list of behaviours, children are often better of with pictures of behaviour like sniffing, grooming or scratching.

During the whole exploration and experience phase questions aimed at experiencing the animal should be asked. These experiences can be coupled to emotions to give meaning to the experiences. What do you think the animal feels like? And then have the child feel it! What does the animal smell like? Do you think it is a nice or not so nice smell?

Nowadays many children already have a mobile phone with a camera function. The quality of the pictures and movies made with mobile phones has become very good. When children are encouraged to shoot photos or films of aspects they find interesting, this gives them the opportunity to experience the animals even better. In a follow up lesson the photos can be discussed and another reference to emotions can be made to strengthen the experience. If the children do not have easy access to mobile phones the teacher can organise a standard digital camera and let the children operate it.

At the end of this phase opportunity to touch, feel, cuddle or pet the animal should be given. The teacher can go around with the animal itself or one by one children may be called forward to hold the animal. This is also the perfect opportunity to take pictures of the child and animal.

Evaluate

When it is time to finish the lesson it is best to evaluate without the animal being present. The animal keeps the attention of the children, which impedes a good evaluation. During the evaluation the observations are discussed and the emotions children experienced during the lesson are made explicit and coupled to the experience. Genuine love can be felt toward an animal although affection is more common. Often the fear children felt beforehand did not persist throughout the lesson or may have changed into something less intense. But whatever the emotions the children experienced, it will be a lesson they remember as a valuable school time experience.

Acknowledgements

I would like to thank the many students that enthusiastically engaged with the animals we presented and overcame their prejudice by being curious. Special thanks to Frans Kingma who taught me much I had to know to teach with live animals. Wendy Righart van Gelder made constructive comments on the translation.

Literature

One of the most important challenges Georgia faces is reform of its educational system. Education, along with public media, is able to alter the whole construction of beliefs and assumptions that have been held for several decades.

In the modern world analysis and critical thinking are valued more than scholastic knowledge and physical skills. The increasing volume of information, the demand for qualified workers, and decentralized economics require students to become constant learners and to develop creativity and analysis. The extensive range of interests and information will allow graduates adapt to different professions and acquire innovative careers. The goal of school is therefore to equip students with knowledge and skills that will be essential in their future lives. This is why it is important to define what and how we teach.

A school is a dynamic community, and it has to be oriented by clearly articulated and thoughtful goals. The moral values and principles are successfully conveyed by team of educators who share professional goals and are able to build up an atmosphere of trust, energy, and partnership in the school. A student educated in such school will become responsible member of the society.

Ten years ago, late Guivy Zaldastanisvili, Georgian born repatriated American citizen, American director Dr. Donald Thomas, and 5 US trained Georgian teachers founded the Guivy Zaldastanishvili American Academy in Tbilisi. Since 2001, the school has grown substantially. Currently, its staff includes around 45 teachers, administrators, and other school professionals. It has eight departments, the teachers training courses, more then 15 clubs and summer school. It is private, liberal arts high school. The language of instruction is English, except for Georgian and Russian classes. We have 5 generations of graduates who study in local universities, in Europe and America.

Our school is regarded as the most successful school of Georgia, and Ministry of Education and Science acknowledges GZ AAT as the model school for secondary institutions in the country. Our abiding goal has been to disseminate our experience to public schools throughout Georgia.

Science instruction at AAT requires 3 years of biology, chemistry and physics respectively in 9\textsuperscript{th}, 10\textsuperscript{th} and 11\textsuperscript{th} grades, plus elective courses and SAT preparation in 12\textsuperscript{th} grade. Our science courses are interactive, based on hands-on activities. Biology covers biochemistry, genetics, evolution, cytology, ecology, microbiology and human anatomy. I have been teaching freshmen biology class since 2001. The curriculum implements simulations, paper and wet labs, designing experiments and projects, modelling real discoveries and discussions in the class. During my teaching at AAT I have used two different textbooks, handouts and articles from periodic media.

While designing curriculum, I have been taking into account that students admitted to AAT were from diverse schools with different backgrounds in biology, but almost without any experience of interactive teaching. My aim was to represent Biology, not as collection of facts but the realm in which students could manoeuvre with information and logic, make investigations and discoveries, and challenge theories accepted by professionals and other respected adults.
Discussions are the crucial part of the curriculum, but also the most intellectually demanding and energy consuming for the teacher. Orchestration of a class discussion requires knowledge and experience and some elaborate skills. Checking knowledge of content is simple: the teacher asks questions mostly with a single possible correct answer and immediately evaluates it, accepts or rejects as wrong. In contrast, interactive teaching targets most intimate, thinking processes of a person, attempts to develop ability to synthesize ideas, analyze and think critically. Properly organized discussion should provoke creativity and freedom of expression, foster respect to values and points of view of the participants.

Our classes comprise 14 students and discussion participants sit around oval table. The teacher sits among students at the same level; all participants see each other and are subject to be called upon to enter the discussion at any time.

The discussion might initiate either the teacher or the student, who is interested in specific issue. Usually discussion develops around themes of an assignment which was assigned ahead. To trigger discussion, I mostly use written assignments; e.g. the set of questions that come with homework readings, or perhaps some statement related to a current theme. Another option results from practical work that was held beforehand. A question asked might be answered by one student and refined and developed by others. If discussion flows smoothly and students develop one concept out of another, the teacher tries to restrain her participation to positive reinforcement, to encourage and indicate successful guesses. To avoid direct rejection of a wrong assumption, I suppose its better to ask the class whether others agree or disagree with it. If class is still stuck the teacher facilitates correct answer by adding additional details, giving hints or drawing parallels with similar events or by restating the question and statement which was difficult to interpret. Often, when one of the students understands phenomena erroneously, classmates try to help him, explaining causes of misunderstanding, having perhaps experienced similar difficulties coping with troublesome passages. I encourage classmates helping each other in this way; it solves immediate problems and helps the teacher to understand the way they are thinking. In general, students are eager to demonstrate their intelligence and knowledge rendering the overall atmosphere in classroom more cooperative then competitive.

One of the challenges of classroom discussion is balancing interaction of students and giving more or less equal chances for shy, modest individuals to contribute as well as the more assertive, active students. Apart from general classroom politeness and respect for classmates, the teacher can require maintaining additional regulations for discussion, such as, limiting frequency of participation or monitoring their time of contribution. The teacher also can directly apply to students and ask for his or her opinion on a given case. Interrupting even a wrong reply is strongly discouraged and participants are required to listen to the end and signal their willingness to talk by raising hand or simply by picking up the thread at the end of the phrase.

In introducing a first time discussion to the class, the teacher can record the numbers of contributions from individual students during session, thus emphasizing importance of taking turns’ and keeping track of individual participation.

The discussions might be of various types: the teacher is actively involved and leads to certain goals by asking questions, encouraging and instructing them. This type of discussion is held mostly at the beginning of the unit, when students need to build up bulk on knowledge.

When class reaches appropriate level of competence in a given topic, the teacher can present an important problem related to the unit and let class discussion revolve around the problem, limiting her own participation.
Example: unit ‘viruses’

Themes:
1. Viruses as invaders of the cells and disease causing agents.
2. Viruses as nonliving particles.

The goals of first part of the unit are: to check factual knowledge, the machinery of spreading, reproduction and elimination of viruses; to classify them, to describe the cycle of the virus activation and to define the course of disease manifestation. Mostly questions are so called proximate causation questions, which start from word ‘what’ and ‘how’ and ask for answers that are descriptive and require descriptions of structures and processes.

*Suggested proximate causation questions:*
1. Describe structure of viruses.
2. How do they reproduce?
3. How do they get inside of the cell?
4. What is the difference between lytic and lysogenic cycles?
5. Which one is more effective?
6. How are viruses classified?
7. What was supposed about viruses’ origin?

Second part of the unit aims to reveal the idea of what life is, defining it, and drawing a line between absolute or relative connotation of living, ethical issues, prospective of human usage, versions of viruses’ evolution might also be discussed. Questions posed by the teacher are most general and refer to ultimate causation. They are mostly ‘why’ questions.

*Suggested ultimate causation questions:*
- Why are viruses referred as nonliving particles?
- Why are viruses so simple?
- What is the difference between living and nonliving?
- What are the criteria for definition of living things?
- Do these criteria have any practical usage?
- In what way does virus life cycle resemble to some of the techniques of genetic engineering?
- Suggest what might be some of alien form of life be alike.

Discussion doesn’t only consist of arguments pro and con, but facts and ideas that students and teacher exchange during classroom time, information that comes from periodic media or participants own experience, gained in other disciplines or from books. The teachers’ questions are open ended, with two or more potential answers. In fact, the discussions are not strictly limited to single types, but combine ideas, facts, and experience. Such discussion might turn into an intellectual exchange between the teacher and students, irrespective of their position or age.

One of the most important techniques for increasing interest in science topics is the possibility of applying learned information to real life. The hottest debates we have had in my class are those that concern family planning, legislations for drug addicted people and evolution vs. creationism. For all those diverse topics that are dis-
putable and controversial for adults, children demonstrate deep understanding of importance of social and scientific aspects of the problems. They are enthusiastically interested in ethical issues which modern biology rises in abundance.

I often hear from my current students and graduates that biology is the most interesting science because it is about us, humans. To keep balance I say that all science is about us. Well, perhaps there are others who prefer physics or chemistry. But frankly, science is not the field where majority of our students are planning to apply their talents. Like in the most of the world, they envision their careers as businessmen and businesswomen. The young Georgians are very success oriented and ambitious people; many of them are obsessed with ideas of becoming powerful and reach. But even so there are always groups of individuals who want to dedicate their careers to science, biochemistry, neuroscience, genetics, zoology, or evolution. In general, the students realize that studying biology is not just school requirement, but necessary knowledge with which they should be equipped for their future lives.

Discussion provides the possibility for personalizing relationships between students and teachers, which is much in demand by children. In the busy modern world they are thirsty to communicate with adults and with peers, to reveal their personality, uniqueness, and ideas; they seek approval and common ground in their yet shaky system of values. Discussion provides the possibility for students and teachers to learn from each other, to make friends, and ultimately build trust that outlasts their education.

Still, I see some difficulties in arranging discussion in a large classroom. Our school is a private school and we started with 12 student classes. Now we have an average of 14 students in class. Although I can imagine that some teachers can conduct discussions in larger classes, for me 14 students are the maximum. As I already mentioned, the Ministry of Education and Science of Georgia calls for introducing GZ AAT experience in public schools, where classes are substantially larger, my personal opinion is that it will be difficult though not impossible to implement classroom discussion in classes of 30 or more students.

References


13. Real Life Learning in the Real World

Gert van der Slikke, Ilonka Prins, Mart Ottenheim and Ellen Sjoer
Centre for Science and Technology West, Research group Knowledge infrastructure for Science and Technology, The Hague University, The Hague; Delft University of Technology, Faculty Technology, Policy and Management, Delft.

Abstract

Learning about the world can best be done in the real world. Learning in the real world has meaning and context. However, we teach our children about the world in a box with four walls, a floor and a ceiling. Moving from this box to the real world outside the school, we call Real Life Learning. Several studies have shown that teaching outside the classroom has many positive consequences for the knowledge pupils acquire, the skills they develop and the attitudes they form. This has led to the publication of the Learning outside the classroom manifesto of Ofsted in which the Department for Education and Skills of the United Kingdom pleads for more teaching outside the classroom. The evaluation of the program shows that teachers are hard pressed to go outside their classroom and when they do go, the teaching outside is poorly correlated with the teaching inside.

On the basis of 30 years of teaching experience Jim Martin formulated four phases of outside teaching a teacher goes through, from the start of his career. In the first phase the focus of the teacher is on the organization of the outside activities. The outside teaching is merely an extra for the pupils and it has no relation with the activities inside the classroom. In the second phase the teacher becomes enthusiastic and tries out many things. Now the focus is on the knowledge pupils acquire and the teacher will assist them with this. In the third phase the teacher becomes aware of the importance of embedding the outside activity within the teaching inside. Fewer outside activities are organized but in this phase they are at one with the inside activities. The focus of teaching is on the children. In the forth phase this integration of inside and outside teaching becomes even greater. The teacher sees no difference between the two. He only sees opportunities of creating a learning environment wherever he looks.

Jim Martin’s model offers the opportunity to think about the development of teachers and about how we could stimulate these teachers to move from one to the other phase. His model is not complete and to be able to test it we rewrote his phases. We have used this model to design two studies on Real Life Learning in The Netherlands. The first study is an inventory of how often Real Life Learning does occur in The Netherlands and what the attitude of the teacher is toward this type of education. In the second study we try to stimulate pre-teaching students to go from one phase to another by assisting them when they go outside with their group of pupils. In order to test the model of Jim Martin we rewrote it to suit pre-teaching students and the Dutch educational system.

Introduction

In The Netherlands most of the educational system is situated indoors. Teachers and students alike are seated at a desk in a classroom. The Netherlands is a highly urban-
ised and densely populated country, so often the school is situated in between houses in a city, town or village. Next to the school building is the play yard and sometimes a sports hall. Every morning and afternoon children play for a quarter of an hour in the play yard and two or three times a week they have gymnastics in the sports hall. In this educational system teachers rarely leave the school grounds in order to teach in the real world. Traditionally children will participate in an autumn walk, visit a museum or work in the school vegetable gardens.

Research has shown that short but highly intensive field trips enhance the knowledge of pupils and students considerably (Knapp and Barrie 2001; Knox, Moynihan et al. 2003; Prokop, Tuncer et al. 2007). But the long-term effects of environmental education in primary school have also been noted (Jansen, W. Smit et al. 2006). The Office for Standards in Education (Ofsted) of the United Kingdom, reviewed fifteen outdoor education centers in Great Britain and their effect on students aged from nine to sixteen. These centers accommodated residential visits but also day trips. They concluded that outdoor education “... makes an important contribution to students’ physical, personal and social education.” (Ofsted 2004). A similar conclusion was stated in the evaluation of Learning outside the classroom. Manifesto (DfES 2006; Ofsted 2008). It can be concluded that teaching outside the school building is beneficial for the development of the children in various ways.

Instead of the phrase “learning outside the classroom” as used by Ofsted (2004) we use the term Real Life Learning (RLL) in which children learn about the real world in the real world itself, outside the school and off the school yard. Examples include visiting shops, supermarkets or museums and learning outside in nature. Visits to playgrounds and residential visits are also included in the term Real Life Learning.

If learning outside the classroom is so important to the learning curve of the student, why does the teacher not make more use of it? Why not teach completely in the real world? Do we even know how often teachers actually go outside the classroom? Jim Martin proposed a model of four phases a teacher goes through in his teaching career (Martin, 2001). When first confronted with organizing an activity outside the classroom, the teacher will focus on the organization of the activity. In the second phase the teacher is enthusiastic and focuses on the learning value of the activity with the emphasis on declarable knowledge. In the third phase the teacher puts the activity in a larger perspective and links it to other elements from the curriculum. Finally, the teacher does not make a specific distinction between outside and inside learning, but chooses whatever is best for the children at that moment regarding the subject at hand. We have summarized Martin’s model by using key ideas that state a property of the teacher in any particular phase. The description of the phases was not complete. Some properties of teachers were mentioned in the third or fourth phase but were absent in the first and second phase. We added new aspects to ensure continuity for a property throughout the phases (Table 1).

The aim of this study is twofold: Firstly, an assessment is made about the nature and frequency of RLL in The Netherlands. Secondly, an intervention is set up to investigate a method to overcome barriers due to involvement of the teachers college. To measure the effect of the intervention we used the model by Jim Martin (2001). But in order to use this model a translation was needed from the four phases to the Dutch educational system. Furthermore, the model had to be completed and linked to the behaviour of teachers in- and outside the classroom. To avoid confusion we will use the term student for the pre-service student teachers and pupil for children in Dutch primary schools from the age of four to twelve.
The Dutch educational system

Since the 1960’s Dutch education has been slowly changing from teacher focused and class oriented teaching toward pupil focused and group oriented teaching. In a typical Dutch classroom the children are grouped and several pupils have a different program from the rest because they are faster or slower in a particular subject. The schools use textbooks and workbooks to guide the teacher in a subject. For each discipline several textbooks are available supplied by several specialized publishers. Some textbooks provide alternative routes for slower or faster pupils. Dutch teachers are therefore used to working with small groups. Nonetheless, when a teacher is confronted with Real Life Learning he may want to hold on to a familiar and controllable organization structure. Pre-service students come across and get trained in different organization structures and skills in- and outside the classroom. Furthermore, pre-service students are familiar with textbooks, nationwide outlines and long-term educational goals.

There are several strong traditions related to RLL in The Netherlands. Dutch teachers will be familiar with these RLL-activities from their own experience as a child. Schools have these activities well embedded in their curriculum.

- School gardens where used in the first half of the 20th century to provide poor families with fresh vegetables and fruit, especially in the large cities like Amsterdam, Rotterdam, and The Hague. Many primary schools have school gardens nearby or go to large garden complexes where children learn how to grow vegetables and where they learn to have respect for everything that lives. Normally 6th grade pupils (aged ten and eleven) will go to a school gardens for one season, taking home their grown crop.

- Seasonal field trips are an annually reoccurring activity in Dutch schools. Most often the trip consist of a stroll through a forest or park supplemented with assignments along the way.

- Most towns and cities in The Netherlands have a facility known as the ‘children’s farm’. This is a small farm within an urban area with one or two cows, some goats, sheep or even pigs. The farmyard is also well stocked with chickens and doves. Inside, guinea pigs and rabbits are kept for children to pet and cuddle. Most farms have free entrance and parents with children often visit them. Special activities are created for schools to teach pupils about farms and farm animals. There is a strong emphasis on knowledge but also on the children’s attitude toward animals (like respect and wellbeing).

No research has been done in The Netherlands into the extent to which teachers use the school surroundings for education. Therefore we have no idea how often children leave the classroom and learn outside.

The RLL-questionnaire

A questionnaire was developed in which in-service teachers were asked about their attitude toward RLL and their practice of RLL on their primary school. Furthermore, an inventory was made of what they thought were obstacles and barriers in executing RLL. This questionnaire was presented to teachers from different parts of the central western of The Netherlands.

Preliminary results of 47 returned questionnaires show that on average a teacher visits the real world between eight and four times a year. Most respondents would like
to engage in RLL more often than is their current practice with once a month being the average. The attitude of the teachers towards RLL is highly positive, but on average they find it not so easy to organize and some do not feel at ease outside the classroom.

The main barriers the teachers perceive are: funds, transport, time, no RLL in the program and unfamiliarity with the possibilities of the school surroundings. The teachers college can help improve RLL by offering teacher students more opportunities to experience this teaching method and by giving them more RLL-related assignments. Own experiences are valued more than best practices of others. At forehand we hypothesized that teachers would be held back in their ambition to go outside by their fellow teachers or school management. This however, was not the case.

**Intervention experiment**

The teachers college in The Netherlands spans four years and many aspects of teaching RLL are covered. There is no nationwide curriculum for teachers colleges but most colleges teach about RLL and the knowledge and skills acquired by the student teacher are substantial. Most students have therefore encountered the problems of teaching outside such as the organization of an activity or the embedding of the activity in the curriculum. This means that Dutch students are not unfamiliar with the concept of RLL.

The intervention we designed consisted of an assignment for twelve third year students to prepare and execute an RLL-activity outside the school and schoolyard for the group of children they teach on their pre-service school. These students learn how to teach inside a classroom from the first year they start the teachers college. About 20% of their curriculum is devoted to teaching in several grade groups with children in ages ranging from four to twelve years of age under guidance of an in-service teacher. These third year students already have a good idea of what the normal practice in a classroom is and are well equipped to teach any subject to any age group. The preparation and the results of the RLL-assignment are judged by several people using a form with characteristics based on Table 1.

Jim Martin postulated his model in relation to the development of in-service teachers. However, we designed an experiment using pre-service teachers. Some adjustments had to be made to the model to suit the student perspective. Table 1 shows the translation ordered in subgroups. For each subgroup a translation was made to characteristics that can be observed either during the execution of the activity, in the design of the activity or in interviews with the student. We grouped the characteristics described by Martin, in nine subgroups: organization, design, focus, emotions, attitude, planning, pupil, group size, and pupil goals.

1. The subgroup *organization* is an obvious one. The first phase of the model is devoted to organization and logistics.
2. With *design* we refer to how the activity is designed from a pedagogical point of view. Is the activity congruous with the level of the pupil? Is it imbedded in the curriculum? How does the student help the pupils?
3. With *focus* we mean the concerns a student has in relation to the assignment. For example: the model predicts that the student focuses in the first phase on the organization and neglects other aspects of this RLL-activity.
4. The assignment in itself can generate many *emotions* in students. These emotions may change, weaken or strengthen during the course of the exercise. New emotions may arise when things turn for better or worse. Which emotions students ex-
perience shapes their learning and attitude? They are an integral part of the model Martin presents.

5. The way a student thinks about RLL falls under the category attitude. Is it useful for the children and in which way is it useful? We also tried to formulate characteristics that measure how well the student articulated his attitude toward RLL.

6. A strong feature of Martin’s model is that the focus of the teachers shifts toward the needs of the pupil. The student understands the needs, skills and knowledge of the pupil and can arrange learning activities to suite those learning needs.

7. In response to the insight that different children have different learning needs, the student organizes the RLL-activity in ever-smaller group sizes and even individual learning is encouraged.

8. Finally, the way students describe the pupil goals and their own goals differs throughout the phases.

This study is just a small window in the development of the student. Therefore we neglected the characteristics that deal with long-term planning and the number of projects an in-service teacher may be involved in.

Preliminary results show that most students can be scored according to the model. Some, however, show many characteristics of different phases. The table with characteristics is easy to use and gives a clear view on how a student prepares and implements a RLL-activity.

**Table 1.** For each subgroup characteristics are formulated that define the four phases of Martin’s model (Martin, 2001).

<table>
<thead>
<tr>
<th>Phase 1. Logistic phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher generally knows how to organize things but in this phase it demands most of his attention.</td>
</tr>
<tr>
<td>The teacher misses opportunities for pupils to grow and learn.</td>
</tr>
<tr>
<td>The teacher does not tie the activity to the classroom curriculum.</td>
</tr>
<tr>
<td>The teacher does not pay much attention to results or data gathered by the pupils.</td>
</tr>
<tr>
<td>There is no follow up on the outside activity.</td>
</tr>
<tr>
<td>The activity is by design an extra and nothing more than that. The teacher may even consider it as such.</td>
</tr>
<tr>
<td>The results of the pupils’ activities are not communicated.</td>
</tr>
<tr>
<td>The teacher perceives a loss of control over the pupils. He struggles with an overall feeling of not being in control.</td>
</tr>
<tr>
<td>The teacher feels insecure and threatened.</td>
</tr>
<tr>
<td>The teacher will focus on his own safety and security in an activity. He will keep to what he already knows or has previously experienced.</td>
</tr>
<tr>
<td><strong>Added:</strong> Group size is in class oriented.</td>
</tr>
<tr>
<td><strong>Added:</strong> The teacher has no goals for the pupils.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>The organization is ad hoc.</td>
</tr>
<tr>
<td></td>
<td>The organization is incomplete.</td>
</tr>
<tr>
<td></td>
<td>Many aspects of the organization are not addressed.</td>
</tr>
<tr>
<td></td>
<td>The student is agitated during the RLL-activity.</td>
</tr>
<tr>
<td></td>
<td>The student does not communicate rules of behaviour to the pupils.</td>
</tr>
<tr>
<td></td>
<td>Ad hoc, rules are made up with an emphasis on “don’t…”</td>
</tr>
<tr>
<td></td>
<td>Ad hoc, not communicated rules are enforced.</td>
</tr>
<tr>
<td></td>
<td>There is a short introduction to the RLL-activity with the emphasis on organization.</td>
</tr>
</tbody>
</table>
Design
- The student does not consider the option of having the pupil manufacture a product (e.g. fill in forms, posters or journals).
- When pupils do manufacture a product (e.g. directed by the hosting organization) it is not used in further lessons.
- The products are not communicated to third parties like parents or colleagues.
- The student does not help the pupils with the manufacturing of products when they are made.
- There is no related lesson beforehand or after the RLL-activity.
- There is no relation with a project theme, lesson schedule or any apparent theme like Spring or Olympic games.

Focus
- When interviewed, the student focuses on the organization of the RLL-activity.

Emotions
- The student indicates to be uncertain.
- The student indicates to feel threatened.
- The student indicates to feel incompetent.
- The student indicates not to be supported by colleagues and parents.
- The student indicates to experience little cooperation.

Attitude
- The RLL-activity is an extra.
- Safety and security predominates the student attitude. The student chooses known activities from his own past or of the school or classroom history. The school has experience with these activities.

Planning
- Planning of the activity is ad hoc.
- Planning of the activity is not related to other curriculum parts.

Pupil
- The student’s attention is focused on the activity from a classroom perspective.

Group size
- The activity is classroom oriented. All pupils engage as one group in the same program.

Pupil goals
- Pupil goals are absent.
- The student has a hard time making up a goal for the activity (students are asked by the teachers college to formulate goals for any activity they engage in).

Phase 2. Exploitation phase
- The teacher can now generally cope with the logistics surrounding RLL. He makes it complete.
- The teacher is enthusiastic and sees many opportunities he wants to use.
- The teacher has the feeling that ‘pupils ought to do this’. They are doing the ‘right thing’ but cannot articulate exactly why it is ‘right’.
- The teacher uses more opportunities.
- The teacher has pupils making some products.
  - Added: The products of pupils are used in follow up activities.
  - Added: The products of pupils are not shared with third parties (e.g. parents or visited organization).
  - Added: The teacher helps the pupils to make the products.
  - The teacher also pays attention to the increasing of the pupils’ skills.
  - The teacher gets more insight in what pupils do and learn in RLL.
  - The teacher may partly incorporate RLL in the classroom curriculum.
  - Added: The teacher organizes an introduction and/or a follow up activity.
  - Added: Goals for pupils are knowledge oriented.
  - The teacher experiments with working in groups.
  - When not supported, teachers may burn out or entrench in the classroom.
  - This is a sensitive phase in which the teacher is open to input from colleagues or supervisors.
  - Added: The teacher has no specific goals for the students.

Subgroup | Characteristics
--- | ---

115
<table>
<thead>
<tr>
<th>Organization</th>
<th>The activity is prepared in advance.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The organization is almost complete.</td>
</tr>
<tr>
<td></td>
<td>Rules of conduct are poorly communicated at forehand.</td>
</tr>
<tr>
<td></td>
<td>Communicated rules are enforced.</td>
</tr>
<tr>
<td></td>
<td>The student indicates that he has the organization under control.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design</th>
<th>The student has the pupils make simple products like worksheets.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The products are not shared with third parties like parents (via internet or newsletters).</td>
</tr>
<tr>
<td></td>
<td>The student assists the pupils with the manufacturing of the products.</td>
</tr>
<tr>
<td></td>
<td>Products of pupils are used in follow up activities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Focus</th>
<th>Choosing a RLL-activity from all options.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Emotions</th>
<th>The student indicates to be enthusiastic.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The student has many ideas.</td>
</tr>
<tr>
<td></td>
<td>The student has a hard time choosing.</td>
</tr>
<tr>
<td></td>
<td>The words ‘nice’ and ‘fun’ are used frequently.</td>
</tr>
<tr>
<td></td>
<td>The student collects folders and websites with information.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitude</th>
<th>The student emphasizes that he thinks RLL is important.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Pupils have to experience this.”</td>
</tr>
<tr>
<td></td>
<td>The student indicates the importance of RLL but cannot articulate it well.</td>
</tr>
<tr>
<td></td>
<td>The student reacts positively on directions of the teachers college or mentor.</td>
</tr>
<tr>
<td></td>
<td>Directions are followed up.</td>
</tr>
<tr>
<td></td>
<td>“It is a lot of work but it’s fun.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planning</th>
<th>The student tries out different activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>More than one activity is followed up.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pupil</th>
<th>The student knows the pupils’ skills and knowledge.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The student knows which activities appeal to the pupils.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group size</th>
<th>The activity is class size or group size oriented.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individuals in a group work together on a group assignment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pupil goals</th>
<th>Pupil learning goals are aimed at knowledge and skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pupil goals have no connection to the curriculum or other benchmarks like kern-doelen.</td>
</tr>
</tbody>
</table>

**Phase 3. Conceptual phase**
- The teacher has logistics completely under control.
- The teacher views RLL as regular education.
- The teacher plans learning activities before, during and after the RLL-activity.
- **Added:** Pupils manufacture a product.
- The teacher is selective in what activity is done or used. Less activities are used.
- The pupils learn cognitive but also procedural.
- Some learning goals for the pupils and the teachers themselves are formulated.
- **Added:** Goals are knowledge and procedural orientated.
- The pupils work in groups.
- The teacher communicates the project and results to the outside world.
- The teacher starts working more interdisciplinary.
- The teacher develops partnerships he uses regularly.
- The teacher is aware that there is more than test based learning and is using self-directed learning.
- The teacher will assess himself as part of the project.
- The activity (project) is even more embedded in the classroom curriculum.
- The teacher takes nationwide standards and benchmarks into account.
<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong></td>
<td>• The activity is prepared well in advance.</td>
</tr>
<tr>
<td></td>
<td>• The organization is complete.</td>
</tr>
<tr>
<td></td>
<td>• Rules are communicated beforehand.</td>
</tr>
<tr>
<td></td>
<td>• Communicated rules are enforced.</td>
</tr>
<tr>
<td></td>
<td>• The student indicates to be able to organize RLL.</td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>• The student has the pupils make products like: worksheets, poster presentations or journals.</td>
</tr>
<tr>
<td></td>
<td>• Products of pupils are used at follow up activities with an educational purpose.</td>
</tr>
<tr>
<td></td>
<td>• Products of pupils are shared with third parties like parents.</td>
</tr>
<tr>
<td></td>
<td>• The student assists the pupils in manufacturing the product.</td>
</tr>
<tr>
<td></td>
<td>• The student organizes an introduction lesson and a follow up lesson that have educational value.</td>
</tr>
<tr>
<td></td>
<td>• The student pays attention to how pupils work during the RLL-activity.</td>
</tr>
<tr>
<td></td>
<td>• The student indicates to use more disciplines in the RLL-activity. This can be observed in the activity.</td>
</tr>
<tr>
<td></td>
<td>• The student is aware of nationwide benchmarks (kerndoelen) and long-term pupil goals.</td>
</tr>
<tr>
<td></td>
<td>• The student takes nationwide benchmarks (kerndoelen) and long-term pupil goals into account when designing the RLL-activity.</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>• How to fit RLL in my classroom?</td>
</tr>
<tr>
<td><strong>Emotions</strong></td>
<td>• The student indicates the assignment to be challenging and exiting.</td>
</tr>
<tr>
<td></td>
<td>• The student ‘has to think about it.’</td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td>• The student describes RLL as regular education.</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td>• Planning of the activity is well in advance.</td>
</tr>
<tr>
<td></td>
<td>• Planning of the activity is related to other curriculum parts.</td>
</tr>
<tr>
<td></td>
<td>• Only a few alternatives are considered.</td>
</tr>
<tr>
<td><strong>Pupil</strong></td>
<td>• The RLL-activity is evaluated and the pupils focus on the process during the activity and on their emotional experience.</td>
</tr>
<tr>
<td></td>
<td>• The student involves talent development of the pupils.</td>
</tr>
<tr>
<td></td>
<td>• The student supervises the pupils in different disciplines.</td>
</tr>
<tr>
<td><strong>Group size</strong></td>
<td>• The activity is group size oriented.</td>
</tr>
<tr>
<td></td>
<td>• Groups work together on a communal assignment.</td>
</tr>
<tr>
<td><strong>Pupil goals</strong></td>
<td>• Pupil goals are aimed at knowledge and skill.</td>
</tr>
<tr>
<td></td>
<td>• Pupil goals are aimed at several disciplines.</td>
</tr>
</tbody>
</table>

**Phase 4. Pedagogical phase**

- The teacher knows his own skills and is confident.
- The teacher plans many things ahead.
- School and outside are one. The teacher knows what the community/environment has to offer and uses it as a source for teaching.
- The pupils get a deeper understanding of the world around them.
- The teacher creates meaningful experiences for the pupil on the basis of his understanding of the conceptual framework of the student.
- **Added:** The teacher is aware of the knowledge and skill of the pupils.
- The teacher perceives RLL as a vehicle to reach curriculum goals.
- Nation benchmarks and standards get meaning and value.
- The teacher uses ongoing assessments to define the progress of the pupils.
- **Added:** Goals are knowledge and procedural orientated.
- **Added:** Pupils manufacture a product.
- **Added:** The teacher helps the pupils to manufacture the products.
- **Added:** Pupils work in groups or individually.
- **Added:** The teacher thinks and works multidisciplinary.
- **Added:** The activity (project) is an integral part of the classroom curriculum.

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| **Organization** | - The activity is prepared well in advance.  
- The organization is complete.  
- Rules are communicated beforehand.  
- Communicated rules are enforced.  
- The student indicates to be able to organize RLL. |
| **Design** | - The student has the pupils make products like: worksheets, poster presentations or journals.  
- Products of pupils are used at follow up activities with an educational purpose.  
- Products of pupils are shared with third parties like parents.  
- The student assists pupils with producing the product.  
- The RLL-activity is an integrated part of the classroom curriculum.  
- The student pays attention to how pupils work during the RLL-activity.  
- The student assists all pupils during the RLL-activity and checks their progress and helps them.  
- The student indicates to use more disciplines in the RLL-activity. This can be observed in the activity.  
- The student is aware of nationwide benchmarks (kerndoelen) and long-term pupil goals.  
- The student takes nationwide benchmarks (kerndoelen) and long-term pupil goals into account when designing the RLL-activity.  
- The student evaluates the RLL-activity on the level of knowledge, skill and attitude toward the subject.  
- The design of the RLL-activity enhances the pupil’s understanding of the world. |
| **Focus** | - The development of the pupil. |
| **Emotions** | - The student indicates to trust his own skills.  
- The student is confident, well organized and not much will go wrong. |
| **Attitude** | - The student indicates RLL to be normal education and sees no difference between the two. |
| **Planning** | - Planning of the activity is structured in long-term planning.  
- Planning of the activity is related to other curriculum parts.  
- Only a few alternatives are considered RLL. |
| **Pupil** | - The RLL-activity is evaluated and the pupils focus on the process during the activity and on their emotional experience.  
- The student involves talent development of the pupils.  
- The student supervises the pupils in different disciplines.  
- The student has an integrated picture of the knowledge, skills and attitude of the pupils and can assist the pupil when needed.  
- The student indicates that ‘understanding the world around them’ is an important pupil goal.  
- RLL and classroom curriculum are one and the pupil experiences it like that. |
| **Group size** | - The activity is group or individual oriented.  
- Groups work together on a communal assignment but groups may work on different assignments.  
- Individual assignments are tailor-made for specific pupil goals. |
Pupil goals

- Pupil goals are aimed at knowledge, skill and attitude.
- Pupil goals are aimed at several disciplines.
- Pupil goals vary depending on pupil skills

Discussion

It is the first time that an inventory of RLL-activities in the Dutch primary schools is made. Previously we had no idea what the practice in the schools was like. This study shows that teachers underestimate the number of times they go outside, but it also shows that it is not embedded in the school curriculum. Because the general attitude toward RLL is positive and teachers want to go outside more often, there is plenty of scope for improving Dutch RLL. According to the teachers themselves this can best be done by taking (student) teachers outside and showing them the possibilities or having them experience themselves what other options there are.

In this field of science education there is no theory that would predict a teacher’s behaviour considering the implementation of Real Life Learning in any primary school. The model of Jim Martin (2001) is an intuitive account of teachers’ behaviour regarding this process and it is the only model thus far. We took the liberty to supplement the model to be more internally robust and superimposed this new model on the expected behaviour of pre-service teacher-students. We tried to capture the behaviour of the students in short characteristics that can be observed by independent observers of a Real Life Learning activity. On the basis of these observations a student can then be characterized in one of the four phases of Martin’s model.

Objections to temporal linear developmental models have been made by Dall’Alba & Sandberg (2006). They state that the development of human behaviour and attitude toward any subject does not proceed linearly. Alternatively, they suggest that an embodied understanding of the professional environment may be the driving force behind a professional development like engaging in RLL (Dall’Alba and Sandberg 2006). They emphasize that the attitude toward a profession and the experience in that profession drives the professional development. Translated to RLL the view of Dall’Alba and Sandberg may mean that the experience of a teacher with RLL, his attitude towards RLL and teaching in general, determines the way he incorporates RLL in his teaching. This view does suggest that improving RLL on the primary school can be accomplished by training the teachers more extensively in ways that will enhance their positive attitude toward RLL.

Most Dutch teachers are very well organized and organizing a RLL-activity does not pose many problems. How they incorporate that RLL-activity in the class curriculum depends on two things: their view on how pupils learn in general and how important the teacher thinks RLL is for the pupils’ development. A teacher that thinks pupils learn best in a closed instruction lesson would only use RLL-activities that supplement his view and therefore would never grow to phase 3 of Martins’ model. Alternatively, a teacher that is focused on individual pupil learning may choose RLL-activities that would supplement this, but that does not mean that this teacher is a good organizer.

Acknowledgments
We would like to thank all members of the ‘Kenniskring’.

Literature


Ofsted (2008). Learning outside the classroom. How far should you go?

VIII Urban Education
14. Parental Involvement in Children’s Education: The Special Position of Illiterate Parents

Adri Menheere
Hogeschool van Amsterdam
University of Applied Sciences

Abstract

This paper gives a description of an ongoing review study on the subject of parental involvement in children’s education and focuses on the special position of illiterate parents in this matter. When illiterate parents want to assist their children with homework, they are faced with many difficulties. One of the aims of this review study is to find evidence of interventions (good practices) which could help illiterate parents to improve their position as involved parents in their children’s education. Research results indicate a strong correlation between the involvement of parents and school achievements of their children. Parental involvement in children’s learning is also mentioned as a positive factor in children’s social development. More and more parents and teachers are working together as partners in the academic and social-emotional development of young children. To enhance the relation between teachers and parents, several interventions are possible, from parent and teacher training programs to reorganization of the school structure and family interventions. While trying to find an answer to the question of long term effects of parental involvement on children’s education, we meet with research outcomes that indicate the complexity of parental involvement as a research object and mixed findings with regard to long term effects.

Keywords: parental involvement, school achievement, educational partnership, illiterate parents

Introduction

In the past decades the relation between parental involvement in children’s education and school motivation and school achievement has received considerable attention from many researchers in the field of education and social context (cf. Epstein, 2001). Parent involvement and family involvement in education has been identified as a beneficial factor in young children’s learning and social behavior (Fantuzzo, McWayne & Perry, 2004). Fantuzzo et al. (2004) reveal that home-based family involvement emerges as the strongest predictor of children’s school achievements. Because of this positive correlation, parental involvement has become a key component in school policy and government policy concerning family education programs both in the US and in Western-Europe.

Parental involvement and school achievement

Parental involvement in children’s learning does not only affect learning outcomes but also influences learning motivation, attention, task persistence, receptive vocabulary skills, and conduct problems in the classroom (Fantuzzo et al., 2004). Research shows
that besides direct parent involvement in the home situation and at school there is a third factor that should be considered in this context: parents’ strong belief and high expectations of their children’s success in school. Parents socialize children in a way that promotes internalization of social and educational goals. By engaging in educational activities with their children at home (homework, reading, modeling) parents communicate their expectations for achievement. This ‘efficacy’ factor brings the school curriculum goals within the situation at home (MacWayne, Hampton, Fantuzzo, Cohen & Sekino, 2004). Positive effects of parental involvement in different ways can be found both in children’s test scores and in teachers’ expectations of school achievements (Hoover-Dempsey, Walker, Sandler, Whetsel, Green, Wilkins & Closson, 2005). As further indirect implications of active parental involvement found by Hoover-Dempsey et al. (2005) we mention: lower rates of retention in grade, lower drop-out rates, higher on-time high school graduation rates and higher rates of participation in advanced courses.

Separate roles in education are changing into educational partnership

Recently there is a change in the traditional roles of parents and teachers concerning children’s education (Smit, Sluiter & Driessen, 2006; Patall, Cooper & Robinson, 2008). Not so long ago parents were considered to be responsible for bringing up and raising their children at home and teachers were responsible for the education of children at the school (teaching). Nowadays we see parents in the role of teachers and teachers are becoming pedagogists in a more general way. Teachers and parents are becoming jointly responsible for the education of children, both at home and in the school situation. From separate responsibilities of parents and teachers on children’s social and learning development research shows a shift towards a partnership approach (Epstein, 2001).

A crucial factor in establishing and maintaining forms of partnership in the education of students is mutual trust between parents and teachers. Adams & Christenson (2000) found that the relation between parents and school is at a higher level in elementary school than in middle school or other higher school levels. As children grow older the level of trust between family and school declines from both parties involved. One of the facets that was identified as very important to enhance trust between parents and school is a high level of home-school communication. The quality of the home-school communication seems to be a better predictor of trust than the frequency of home-school contacts or demographic variables. Open communication is a frequently found keyword in reports on the relation between school and family (Fantuzzo et al., 2004; Hoover-Dempsey et al., 2005).

Hoover-Dempsey et al. (2005) state that evidence has been found for the fact that teachers and schools are not very well prepared for educational partnership. School environment, school climate, school structure and management practices influence parents’ and teachers’ ideas about parental involvement and forms of partnership. In the initial and post initial teacher training programs teachers could be made more aware of the many aspects of parent-school relationships besides informing parents about children’s learning and progress. They could be taught knowledge and skills in order to make parents feel that they are welcome in the school and that they are respected by the school staff as partners in education. Hoover-Dempsey, Walker, Jones & Reed (2002) present a program to enhance practicing teachers’ skills, beliefs and strategies related to parental involvement. The results of a test of the program
suggest that participation increases teachers’ sense of efficacy and also enhanced teachers’ beliefs about parents’ efficacy for helping children learn.

Smit et al. (2006) state that the concept of ‘equality’ between parents and teachers as educational partners can be criticized. Teachers and parents differ in terms of their position, perspective and background. Low literate status of parents can play a role in the inequality, but also differences in norms and values due to social-economic or ethnic-cultural background and differences in pedagogical approach. These differences can make educational partnership hard to reach.

Under the title ‘Transforming Schools into 21st Century Community Learning Centers’ Anderson-Butcher (2004) mentions several implications and possibilities for parent and family programs to encourage forms of partnership to increase learning opportunities and academic achievement for underperforming children. In these learning centers partnership is not limited to parents and school, but may also include youth development organizations, child care organizations, community centers or religious organizations. In the Community Learning Centers activities like homework assistance, mentoring programs, programs that emphasize language and academic skills for parents and children could contribute to higher school achievement levels.

(LONG TERM) EFFECTS OF PARENTAL INVOLVEMENT

An important question to be answered is: What are the (long term) effects of parent involvement in children’s education? In Patall et al. (2008) results are reported of a meta-analysis from 20 studies correlating parent involvement in homework and achievement-related outcomes. The results reveal a positive association for elementary schools and high school students but a negative association for middle school students. Patall et al. (2008) also report a negative association for mathematics achievement and a positive association for verbal (and other language) achievement outcomes.

One of the conclusions is that research on parent involvement and school achievement often leads to mixed findings, which suggests that the relationship is very complex. Sometimes positive and negative consequences both occur and sometimes they even occur together. This could be due to the fact that different types of parental involvement are examined in different settings, which makes it hard to compare the results. Across all designs Patall et al. (2008) found that the overall effect of parental involvement in homework was small and often not significant. However a number of studies do provide consistent evidence that training parents for homework assistance has a positive impact on children’s achievement. Further, causal evidence suggested that involvement in homework results in higher rates of homework completion and fewer homework problems, which may lead to gains in achievement over the long term. Hardly any significant evidence was found for the long term effects of parent involvement on children’s achievement (Dearing, McCartney, Weiss, Kreider & Simpkins, 2004; Patall et al., 2008).

In several studies the involvement of parents is presented as a complex multidimensional phenomenon (Epstein, 2001; Fantuzzo et al., 2004; Merlo, Bowman & Barnet, 2007; Patall et al., 2008) and support is provided for the use of a multidimensional index in parental involvement studies to prevent overreliance on any specific measurement in this complex construct. Parent involvement in education can present itself in many forms from participating in schools to giving support in home situations (cf. Epstein, 2001). In a multidimensional PI-index many variables that accelerate children’s learning (from parents belief in school success to concrete test scores)
could be brought together to provide more information on outcomes of different parental involvement strategies and possible interventions.

**Possible interventions on parental involvement**

Since the authorization of the Elementary and Secondary Education Act (1965) and the reauthorization in 2002 (no child left behind act) in the US several family education programs have been implemented. Schools were encouraged to seek partners in education. Duch (2005) presented an evaluation of some of the two-generation programs: Comprehensive Child Development Program, Even Start Family Literacy Program, Head Start Family Service Centers, New Chance and New Hope. In these programs parental involvement in learning is emphasized often through empowerment strategies, preschool programs and welfare programs. Liaisons between Head Start and public schools can be found in the ‘Schools for the 21st Century-model’ (cf. Anderson-Butcher, 2004). In this model school are not only places for education, but places where childcare, learning and family service come together.

Intervention with adults in adult literacy programs is however not always very successful. Cooter (2006) found that annually 50-75% of the adults enrolled in adult literacy programs drop out within the first month. One of the explanations could be that poor people must hold several minimum-wage jobs to support their families so there is not much time left for learning. Cooter (2006) sees a strong connection between poverty and the lack of education and concludes that illiteracy and beliefs about leaving school early lead to a cycle of intergenerational illiteracy both in urban and rural settings.

In Hoover-Dempsey et al. (2005) some research findings are presented that may deepen the understanding of parents’ motivations for involvement. In a 5 level theoretical model (cf. Walker et al., 2005) of parental involvement (origin of the model: Hoover-Dempsey & Sandler, 1995, 1997) parents’ motivations, invitations for involvement from child and school could lead to involvement activities of parents. Hoover-Dempsey et al. (2005) offer suggestions for school strategies and interventions that may strengthen the effectiveness of parental involvement activities. The school strategies are concentrated around topics like: invitation and communication, empowerment of teachers and parents, school structure and school policy.

Cooter (2006) provides a number of strategies that teachers could use to help illiterate parents succeed in helping their children to become strong readers. The emphasis is on what parents can do and not on what parents are not able to do. On the classroom level teachers could instruct parents on homework assignments and what is expected of parents in their role of homework assistant.

**Preliminary conclusions**

Research outcomes suggest a positive correlation between parental involvement and school achievement for children in preschool, elementary school and high school. In the studies used for this review no strong evidence was found that indicated positive effects on achievement for the long term.

More and more parents and teachers are supposed to work together in children’s education. Open communication between parents and school is often mentioned as an important factor to establish educational partnership.
Several studies indicate that parental involvement (at home) in children’s learning leads to better achievements in children’s language skills, but produces negative effects on children’s mathematical achievements.

Substantial evidence was found for positive effects on school achievement via intervention forms as parent training programs for homework assistance and teacher training programs on enhancing parental involvement. Evaluations of large scale family intervention programs show mixed findings concerning the effects on children’s school achievement in the longer term.

The results of literature search for this review in different academic data-bases on the topic of involvement of illiterate parents and children’s school achievements are rather limited. A defendable conclusion seems to be that this field of research has not had much attention of researchers over the last years.

References


Janice Fournillier, Christine D. Thomas, Pier Junor Clarke, and Draga Vidakovic
Georgia State University
Atlanta GA, USA

Abstract

Multi-user Virtual Environments (MUVE) are being presented as tools to improve and enhance distance education and learning in higher educational learning communities. Second Life (SL) is one of many MUVEs that have caught the attention of universities in North America and to some extent in Europe. In this paper four professors involved in the support of secondary mathematics teachers in high needs urban school districts in the USA n discuss their use of Second Life in the building of an online professional learning community (PLC). We discuss our conceptualization, operationalization, and implementation of the project thus far and plans we have for improving on it as we study how it works to facilitate retention of high quality teachers in the community.

Key words: MUVE, Second Life, secondary mathematics teachers, professional learning community, urban, high needs

Introduction

Continued professional learning and development is one of the strategies that it is hypothesized can provide mathematics teachers with the support and motivation they need for retention. Johnson, Berg, & Donaldson (2005) in their review found that mentoring and induction for new teachers positively affect new teacher retention. However, the type and number make a difference in terms of its success (p. 89). The level of tentativeness comes out clearly in their description of what they found in their review. Professional development they found may “increase the efficacy of otherwise competent, experienced teachers who now must teach out of their proverbial comfort zone” (p. 92). But they stated, the relationship between professional development and teacher retention remains unclear” (p. 92). On the other hand, Achinstein, Ogawa & Sexton (2010) found that there were general factors that affected the retention of teachers. Professional development opportunities, mentoring and social support were among the many factors that Achinstein et al (2010) identified. Over the past year (2009-2010) we embarked on the use of a Multi-User Virtual Environment (MUVE), Second Life (SL) as a platform for professional development of mathematics secondary teachers and research on the outcomes of our project. The major question that informs our discussion in this paper is: How does the use of SL as a platform for professional development and research impact our goal of retaining high-quality secondary mathematics teachers in urban school high need schools?

MUVEs are fast becoming not only a marketing tool but also a pedagogical tool for higher educational institutions (Andersen, Hirstov & Karimi, 2008). Although there is not a large body of literature on its effectiveness, it is believed that it enhances distance education and learning because it allows for the interaction and engagement
that some of the other methods of distance learning lacks. Gentry, Denton & Kurtz (2008) claim that

Technology-facilitated [peer] mentoring may be particularly useful for educators who due to the nature of their jobs, may be relatively isolated - both from a broader professional community and from access to external resources to support ongoing pedagogical development. When proximal connection is difficult or impossible, technology has the potential to allow disparate and distant teaching professionals to connect with one another and with experts in their fields. (pp. 340-341).

In this paper we provide a background to our project and discuss our efforts to conceptualize, operationalize, and implement it using SL as a platform. In so doing, we explore the challenges and benefits of the design and implementation of our project that is made up of professional learning experiences and Participatory Action Research (PAR) work. Finally, we explore the implications for our goal of retaining high quality secondary mathematics teachers and plans for continuing work using SL.

Background

The project in which we have established our MUVE began in 2005 a National Science Foundation (NSF) sponsored project, which we named the Robert Noyce: Urban Mathematics Educator Program (UMEP) at Georgia State University. The UMEP is currently in year five of the project. The goal of the UMEP is to increase the number of high-quality secondary mathematics teachers who seek jobs in urban high need school districts and are committed to remaining in urban school environments. High need school districts are characterized as having students whose family incomes are below the poverty level, having high teacher turnover, or having teachers who are teaching subject matter which they were not prepared to teach through their preparation programs. Students selected for the UMEP are known as UMEP Scholars. They are enrolled in an Initial Teacher Preparation (ITP) degree program designed to produce mathematics teachers for secondary schools in the USA. In addition to engaging in a PLC, there are a number of other components in the degree program beyond the regular coursework that add to the rich development of the UMEP Scholars. At the beginning of the ITP degree program, the scholars are introduced to the Reflective Teaching Model (RTM), which is threaded throughout their program. The RTM (Hart, Schultz & Najee-ullah, 2004; Thomas & Santiago, 2006) is an innovative process of reflective lesson planning, teaching, and debriefing designed to facilitate standards-based teaching as documented in the National Council of Teachers of Mathematics (NCTM) Standards (1989, 1991, 1995, 2000).

Since its inception, the UMEP has included an active Professional Learning Community (PLC) composed of the scholars, the UMEP leadership team, secondary mathematics teachers including mentor teachers, and school administrators. This component serves to support the scholars through their third year of teaching. In 2009, we moved to an online PLC designed to provide continued support for our UMEP scholars during and beyond the first three years of teaching. We decided collectively on using Second Life for our virtual forum. Second Life (SL), accessible via the internet, is a virtual world, a genre of online community. Its users called Residents interact with each other through avatars, computer users’ representations of themselves or
alter egos modeled in three-dimensions. Residents can explore, meet other residents, socialize, participate in individual and group activities, and create and trade virtual property and services with one another, or travel throughout the world. In SL, the UMEP scholars are able to experience and examine a broad range of classroom situations as well as foster a sense of community while sharing best practices and reflecting on their experiences.

**Conceptualization**

Second life has been conceptualized as a 3D virtual world environment that enables its users known as Residents—to create content, interact with others…. collaborate and educate (Linden Lab, 2009). In this section of the paper we discuss assumptions about knowledge, and reality as they relate to research, Second Life, professional development practice (Webster-Wright, 2005) and learning. This approach is in keeping with the focus of the paper on our use of SL as a platform for online professional development and as a research tool. (See Figure 1). We built our conceptual framework around major concepts that informed the professional learning opportunities and research of the activities involved in the process. They are: Symbolic interactionism, sociocultural theories of learning, adult learning, professional development, and motivation and retention within distance education.

**Symbolic interactionism**

Symbolic interactionism (Blumer, 1969; Mead & Morrison, 1997; Dewey, 1963) is the major philosophical perspective that frames this project. Le Compte and Preissle (1993) present a list of assumptions that grounds symbolic interactionism and facilitate our conceptualization of the project. The assumptions are:

1. Meaning is constructed through social interaction.
2. Individuals act on the basis of the meaning they perceive.
3. Meanings change in the course of interaction because of different perceptions held by the actors.
4. Thus, reality is not a prior given, it is based upon interpretation and it is constructed during interaction between and among individuals.
5. Reality is not fixed, but changes according to the actors and the context (pp. 128-129).

This theoretical perspective provides a most suitable structure for us to explore the meanings we (Various members of the community are making, our interpretations of the meanings, the various interactions, and the outcomes of the use of Second life as a platform. It allows us to eliminate the subject-object dichotomy and to focus on the integration of participants and the community (See Figure 2 below). The perspective also informs the questions that frame one aspect of the project.

The sociocultural theory of learning adopted in our conceptualization of the project fits well with symbolic interactionism. Learning according to Lave and Wenger (1991) is not about internalization but “increasing participation in communities of practice (p. 49). This conception of learning framed the design of the research project and thus we structured it so that our focus is not on the individual but participation in the community. Goodnow (1993) reminds us that “it is the nature of one’s position, of one’s participation in the social life of the group that influences the extent to which
one picks up and appropriates as one’s own the skills and ways of thinking valued by
the group (p. 373). This theory becomes even more useful given that the participants
were along a continuum in terms of the number of years as teachers. Some were novice/apprentices as defined by Lave and Wenger (1991). Learning according to sociocultural theorists was not about pouring stuff into empty vessels but situated within socio-cultural-historical contexts and distributed. No one person held the knowledge but it was constructed out of and within the interactions and distributed among members of the community. Having accepted this conceptualization of learning, we were then able to adopt a platform that according to the literature () that allowed for peer mentoring, the observation and recordings and facilitated an interactive kind of learning situation.

We were committed to building an online learning community that was not within a traditional course but instead within a funded grant that had as its goal the retention of secondary mathematics teachers in high needs schools. The body of research dealt with issues of distance learning/education but we needed to take into consideration that this was a form of distance learning in which adults living and working in an urban environment were involved. Unlike the norm where the building of an online community was an integral part of the course, we were building an online community outside independent of a course. Like all distance education/learning practices the participants were not bounded by space and time. Although there is some synchronous meeting and planned interaction, the onus is on the participant. The methods used to facilitate the learning experience have grown over the years to the point where multi-user virtual environments, like Second Life, are fast becoming a pedagogical tool in higher education (Andersen et al, 2008). This necessitated an understanding of how distance education works and issues surrounding motivation and retaining their interest in the professional learning community. Our major goal was to provide opportunities for development that would assist in their retention as mathematics teachers. But in using this virtual environment as the learning space we also had to take into consideration motivating them to participate and remain members of the community.
Figure 1. Theoretical framework.

Operationalization and implementation of the professional development project and research

As seen in previous section, we drew the design of our work on various theoretical and conceptual frameworks including, but not limited to, sociocultural theory of learning, symbolic interactionism, adult learning, professional development, along with motivation and retention in distance education. At the beginning of our project, we identified and defined the major concepts and decided on appropriate procedure for capturing and collecting data to document our work and possibly make certain claims about various aspects of our experience. Our primary focus was the development of a professional learning community and research on mathematics teacher retention in an urban environment. The secondary focus was the use of Second Life as a platform for realization of our primary focus. Therefore, the emerging goal of our work is the development of an Online Professional Development Community (Long, 2008).

Our UMEP online professional learning community consists of GSU faculty UMEP leadership team, IT faculty and GRA consultants, participants’ scholars leadership team Noyce scholars and graduate student research assistant, and UMEP participants ‘ scholars 2005-2010 Robert Noyce scholarship program (See Figure 2). We operationalized the project as one in which there would be a participatory culture and thus Participatory Action Research (PAR) was envisioned as the major research methodology. To answer our research question, “How does the use of SL as a platform for professional development and research impact our goal of retaining high-quality secondary mathematics teachers in urban school environments?” We needed to first
make meaning of the terms we use so we could be clear about them and the kind of data we needed to look for (Fraenkel & Wallen, 2000).

Figure 2. Our professional learning community

Building an online professional learning community

Our PLC, which is in its fifth year, began as face-to-face seminars every semester while our first cohort of scholars were in preparation and continued during their induction years as other cohorts embarked on the journey (See Table 1). The scholars shared teaching activities that were guided by the Georgia Performance Standards, the state’s mathematics curriculum. Collectively with additional funding from NSF, we decided to move to the online PLC to continue support and accommodate all scholars through a convenient virtual platform, Second Life. Our SL Project, a virtual professional learning community (PLC) that is located online in Five Points at Georgia State University (www.gsu.edu/ist/secondlife.html) serves as a gateway to continued professional development for our UMEP Scholars. Our online PLC has three fundamental elements:

1. the domain of secondary mathematics knowledge,
2. the “community of people who care about this domain” such as the GSU faculty UMEP leadership team, IT faculty and GRA consultants, participants’ scholars leadership team Noyce scholars and graduate student research assistant, and UMEP participants’ scholars 2005-2010 Robert Noyce scholarship program. The scholar’s leadership team that we designed is a community that works together. We are all in the community with different roles. Collectively, we form the community of practice where we are all developing/learning from each other.
3. the practice guided by “the set of frameworks, ideas, tools, information, styles, language, stories, and documents that [our] community members share” (Wenger, McDermott, & Snyder, 2002, p. 27-29).
The purpose of this community of practice is to create, expand, and exchange knowledge, that is, learning from each other, and to develop individual capabilities in order to sustain their practices in the PLC and their urban schools. We designed the PD project such that scholars’ leadership team would have the responsibility of: (1) designing the online professional learning community that would reflect the needs of participating teachers and (2) taking care of the ongoing operation or process in SL. The UMEP Faculty leadership team assumed the role of facilitator, colleague, and learner. Our intention was to accomplish the goal of building the online PLC such that the community could continue to sustain itself continually after the NSF project ended (Wenger, McDermott, & Snyder, 2002). However, our ultimate objective is to retain our scholars to teach in urban high need schools throughout the process. After establishing and implementing the activities and operations that we deemed necessary to build our PLC, through participatory action research methods we measure the quality of our interactions, motivations, commitment, resourcefulness, shared activities.

The implementation process takes place over the period January 2009-May 2011 (See Table I) with the team playing a participatory role in the development and building of the online support learning community. The part and allows for a reflection, revise, and implement model. Although we might not be skilled in the use of technology as the innovators, we might be considered according the diffusion of innovation in education model (Jennings & Collins, 2007) to be among the “early adopters” or visionaries. Jennings & Collins describe this group as:

Educators as early adopters explore technologies to expand on cutting-edge instructional methods for teaching effectiveness. They are risk-takers, and apply an interdisciplinary approach to teaching, learning, and research. They are often skilled in use of technology, although not to the same extent as the innovators. (p. 181)

Table 1. Implementation plan.

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Activity</th>
<th>Participants</th>
<th>Data Source for Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>January-May 2009</td>
<td>Select Scholars for Online Lead Teachers</td>
<td>UMEP Faculty Leadership team, Lead teachers/scholars</td>
<td>Application letters/plans for implementation</td>
</tr>
<tr>
<td></td>
<td>Begin training of Lead teachers</td>
<td></td>
<td>Discussions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Questionnaire data</td>
</tr>
<tr>
<td>June-August 2009</td>
<td>Complete development of online PLC</td>
<td>Lead Teachers, UMEP Faculty Leadership team</td>
<td>Recorded sessions, survey, interviews,</td>
</tr>
<tr>
<td>August 2009-May</td>
<td>Implement Online PLC</td>
<td>Lead Teachers</td>
<td>online discussions (IM) chats artifacts</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td>journal reflections</td>
</tr>
<tr>
<td>June-August 2010</td>
<td>Reflect, review, and revise PLC for year 2</td>
<td>UMEP Faculty Leadership team, Lead teacher/scholars</td>
<td>Recorded sessions, survey, interviews,</td>
</tr>
<tr>
<td>August 2010-May</td>
<td>Implement Year 2 of Online PLC</td>
<td>Lead Teachers, UMEP Faculty Leadership Team</td>
<td>online discussions (IM) chats artifacts</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td>journal reflections......</td>
</tr>
</tbody>
</table>

As the UMEP Leadership team, our interest in facilitating the building of a learning community has propelled us to adopt the notion of “research” conceptualized by Kemmis & McTaggart (2005) as “people working together to develop a greater collective capacity to change the circumstances of their own lives in terms of collective capacity building” (p. 598). We adopted their Participatory Action Research (PAR) model and use methods and techniques characteristic of a reflexive perspective. This
perspective views practice as “socially and historically constituted and reconstituted by human agency and social action” (Kemmis & McTaggart, 2005, p. 576). As a community, we designed a participatory action research study, use multiple methods of data collection, and do a dialectical analysis of the data. Our efforts to sustain retention via the building and development of an online learning community are ongoing reflections of the outcomes and consequences that we see. The research process will allow us to investigate the conditions, circumstances, and processes that contributed to the group members’ understandings and improvement in their practices as secondary school mathematics teachers in an urban environment.

We, the community of learners, began exploring SL in ways that can provide us with evidence of our physical interactions [through pictures and videoing in SL], discussions in SL, and surveys. The scholars, teachers and scholar leaders have explored other means of resources such as library, wikispace, pbwiki, etc. The UMEP leadership team and the scholars’ leadership team had several meetings to determine our needs, support, and next steps for the short term plans. Evidence of these conversations and decisions and their impact on the core community are data sources that we will rely on in our research on the project (See Table 2).

Throughout the SL experience there are several layers and instances of professional learning for each community member. They are:
- Computer technology training in the use of Second Life
- Math I group session
- Math II groups session
- Calculus and Trigonometry group session
- UMEP / Scholars Meeting sharing readings, and books, and web links
- IT faculty and GRA consultant meets with UMEP leadership team (2 members)
- GSU support for SL meeting
- Peer Mentoring [evidence through discussions in content-specific sessions]
- Motivational [intrinsic/extrinsic – evidence of what approaches were used to motivate /bring their peers on site for participation]

Table 2. Data Collection Plans

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
<th>How it is refreshed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>Email frequency per PLC member (to the Google Group)</td>
<td>Passive data collection, constant refresh</td>
</tr>
<tr>
<td>Quantitative</td>
<td>Meeting attendance</td>
<td>Manual data collection attendance is taken by a leader</td>
</tr>
<tr>
<td>Qualitative</td>
<td>PLC Satisfaction Survey (March 2010)</td>
<td>Automatic data collection via a Google Form/Spreadsheet</td>
</tr>
<tr>
<td>Quantitative</td>
<td>Usage of the Wiki</td>
<td>Automatic</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Second Life instant message logs</td>
<td>Manual - requires a leader to copy/paste contents of a window after a meeting</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Second Life video</td>
<td>Manual - requires Graduate Research Assistant or designee to record</td>
</tr>
<tr>
<td></td>
<td>Initial meeting notes re goals for the project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership application letters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E-interview</td>
<td></td>
</tr>
</tbody>
</table>
Preliminary findings

While we are completing our initial phase of implementation-- two semesters of convening our PLC in Second Life coupled with the use of a Google Group and a wiki space, we have collected data that provide preliminary findings. Questions that guided our analysis provided for a formative evaluation of the project are:

1. What have been the challenges faced because of our attempt to use technology to provide continuing professional development?
2. How have we used the knowledge gained from observations of the interactions and students’ comments to make meaning of what was happening and subsequent changes?
3. What have been the student leadership responses to the meaning they make of what our goals and expectations are and the needs of their peers with whom they are working?
4. What lessons then are we learning about the use of second life as a tool?
5. What changes are we the faculty finding ourselves having to make?
6. What are our action plans?
7. Are there obstacles to achieving our goals and how do we plan to deal with them?

The analysis of the data sheds light on our questions as follows. One of the major challenges with our push to use SL as the medium for our PLC was to insure all participants would be comfortable and savvy with the use of the technology. Prior to moving our PLC to SL, we held two face-to-face PLC meetings for the purpose of developing the Scholars’ comfort with the technology. While the face-to-face sessions were useful, they did not alleviate all issues. First, we looked at the level and quality of participation of our Scholars in the SL meetings. We found that of the 35 Scholars 26 participated and met the minimum requirement of attending at least two sessions per semester. We examined the quality of the sessions by listening to the conversations and watching the interactions, keeping track of the follow up discussion in Google Group and the postings in the wiki space. As a result, we found the Scholars engaged socially in a space where they are comfortable discussing the issues and challenges associated with their teaching.

A rapid assessment format was used to collect data from each SL session. This assessment method was used to respond quickly to ongoing issues with the technology as well as with other issues associated with the quality of the session. One example of the use of the rapid assessment came after the first meeting in SL. In the first meeting, there was an attempt to have a whole group session. Certainly, it was somewhat successful, but the team quickly learned that it would be best to hold meetings more frequently with specific agendas for smaller size groups. With the use of this rapid assessment, the leadership team developed meetings for targeted groups by the mathematics courses they teach. This proved to be a highly successful strategy for raising the level of interaction in the SL meeting and increasing the quality and value of the meetings for the Scholars. Further, we found the follow-up dialogue through Google Group and the postings in the wiki space to be highly interactive and rich. Once the SL sessions ended, we found Scholars continuing the discussion via our Google Group and sharing resources and materials via our wiki space.

With respect to lessons learned by the faculty leading this project, we quickly found the need for continuous engagement in professional development for the pur-
pose of remaining abreast of the latest innovations with the technology and learning new ways of enhancing all aspects of the meetings in SL for the entire leadership team. We are learning about the challenges associated with conducting research in SL. We are working with members of faculty who have expertise in instructional technology to build a bridge between using SL as a tool and using the tool to influence teacher retention.

In our attempt to address our research question, we have only preliminary findings. However, given that this is a question on teacher retention, we can say that all of the Scholars have been retained in urban high need schools. The early findings from this project indicate the project may have influence this retention rate. However, further research is needed to define more specifically this influence.

Implications for retention and research

Our design for the online PLC is congruent with research-based literature on «Effective Professional Learning Communities: and «Best practices» for developing and sustaining Online Learning Communities (Herrington, Herrington, Kevin & Ferry, 2006; Lupincini, 2007; Swan & Dixon, 2006). An effective professional learning community fully exhibits eight characteristics: shared values and vision, collective responsibility for pupil's learning; collaboration focused on learning; individual and collective professional learning; reflective professional inquiry; openness, networks and partnerships; inclusive membership; mutual trust, respect and support (Bolam, McMahon, Stoll, Thomas & Wallace, 2005). We share the belief that these characteristics can be maintained within an online PLC environment and our goal now is to determine to what extent SL as a platform can assist us in this professional development and retention goals. Community building efforts seem to be a promising approach to enhancing the quality of collaborative learning environments and distance courses (Moisseeva & Steinback) and therefore we are motivated as members of the community to explore the process and the outcomes.

The National Academy of Education report supports our intention as they have stated clearly that there is need to look at not just the K-12 classrooms or the teachers in those classrooms. They emphasize that “We cannot ignore the people from whom these teachers learn or those who will support them in learning how to provide teacher development” (p. 75). We are guided by their recommendation that makes bold the claim that «The recommended research program would adopt the perspective that teaching is a complex practice and consider the continuous learning of teaching across the teacher’s career as an integral part” (p. 75). Thus, we the leadership at all levels of the project continue to make adjustments to the tool based on the meanings we are making of the interactions, the challenges, and the benefits.

References


16. Equity Audits and Early Childhood/Elementary Pre-Service Teachers

M. Francyne Huckaby and Michelle Ackels
Texas Christian University
Fort Worth, TX USA

Abstract

This paper explores pre-service teachers’ experiences of equity audits as a method of learning about inequality and equity within an early childhood/elementary teacher education program. This grounded theory study relied on artifacts from an undergraduate social studies methods course (collected by Huckaby) and interviews with current and past pre-service teachers (conducted and transcribed by Ackels). Keywords: equity audits, pre-service teachers, bias, urban education, diversity, teacher dispositions

Introduction

One goal for graduates of TCU’s early childhood/elementary program is that students 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). Thus the program seeks to foster the dispositions necessary for teaching students of diverse cultural, linguistic, economic, and ability backgrounds.

Table 1. Typical Pre-service Teacher Demographics

<table>
<thead>
<tr>
<th>99% Female</th>
<th>1% Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>92% Caucasian Students</td>
<td>8% Students of Color</td>
</tr>
<tr>
<td>96% &lt;25 Years</td>
<td>4% &gt;25 Years</td>
</tr>
<tr>
<td>52% Pay Full Tuition (US$ 26,900 annually)</td>
<td>13% Tuition Benefit; 35% Scholarship</td>
</tr>
</tbody>
</table>

Facilitating pre-service teachers’ understanding of the inequities within school learning environments and among communities, however, is challenging work. I (Huckaby) 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 three 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.

Theoretical framework and purpose

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. To better understand this notion of windows and mirrors, I introduce students to the implicit curricu-
lum, hidden curriculum, and null curriculum, which explore what is taught and not taught through the social, physical, and emotional backdrop of the learning environment and broader community. Such implicit 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, 2009) in what Dewey (1938) calls collateral learning. These pedagogies, public and institutionalized, in and of themselves are neither good nor bad, but as an apparatus of power (Foucault, 1980; 2000) hold the potential to harm or benefit, while 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, 2009).

This study explores the use of equity audits (Scheurich & Skrla, 2003) to facilitate pre-service teacher understanding of equity, structural inequalities, and the implicit curriculum during their third college (junior) year in a social studies methods course. One aspect of this course is a research project that requires the nascent teachers to investigate the community and educational contexts of their elementary school students. As the professor of the course, I studied teacher candidates’ experiences during the research projects known as equity audits.

**Methodology**

The data for this qualitative study include artifacts from the social studies course (syllabi, student assignments including data collected for equity audits and research papers and posters) and voluntary interviews with ten (10) students from the course. The 15-20 minute interviews explored the students’ experiences during the assignment, career goals, and understandings of equity and inequality at the time of the interview. The interviews were conducted, audio-taped, and transcribed by a graduate student and teaching assistant (Ackels), who completed the course in 2008. Identities of the interviewed students were held confidential by the interviewer, Ackels, and are unknown to Huckaby, the course professor and primary investigator of this study. The artifacts and transcriptions were analyzed with emergent codes based on grounded theory (Strauss & Corbin, 1994).

The demographics for the interviewees are 9 female, 1 male, 2 African American, and 8 White. Three of the interviewees plan to teach in public schools as one interview explained,

> [Y]ou know, you're going to have kids from all different levels in your classroom, maybe higher SES, lower, but I would prefer to work at a school that is a little bit more diverse, because I grew up in schools that were predominately White.

Three additional interviewees were interested in teaching in suburban schools because of the school population, as one interviewee shared, “I would like to teach in the [Dallas Fort Worth] metroplex, maybe in the suburbs of Dallas and more in the low income schools.” Interest in teaching in suburban schools also reflected personal comfort as expressed by another pre-service teacher, “Probably suburban… probably just because I grew up in that environment, so I’m more comfortable.” Two pre-service teachers want to teach in any school. One explained, “Honestly, I came from a private
school…, but I will teach in any environment and any school… I kinda wanna go where they need me.” I suspect, but am not certain that such comments may relate to the economic situation of the past year. The final two students hope to teach in other kinds of learning environments, “I’m kind of thinking about going into parent/infant advising, like when parents find out that they have a deaf like newborn.”

Collecting data for equity audits

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. I expand upon the notion of equity audits to work with students as they use the data their classes collected to identify systematic patterns of inequities within school communities. Scheurich and Skrla (2003) explain,

[T]hese internal causes of inequity… are built systematically into the processes and procedures of the system that is the school…. We call the processes that we recommend for addressing these systemic inequalities equity audits…. Thus, we are talking about auditing data on your classroom, school, or district to identify patterns of inequality for the purpose of addressing those patterns and creating new patterns of equity. (p. 80)

To explore implicit curricula through equity audits I guide students in the collection of data in community, online, school, and classroom contexts, the critical analysis of the data through equity audits, and the development of more nuanced understandings of inequality and equity.

For the semester, the each student spends about 40 hours with one classroom in one of four schools. Students work with the class and assist the teacher in planning, teaching, and assessment, as well as complete assignments for 5 courses focused on teaching mathematics, literacy, writing, social studies, and English language learners or special education students. Typically, 40-60 students participate in these courses as a cohort and are divided into two class sections. While the schools vary from year to year, during the past three years they have included six public schools and one private school. See table 2 for descriptors of student populations in each school from Great Schools website. Sixty students were placed in schools A, C, D, and G in 2008, 53 in schools B, C, E, and G in 2009, and 42 in schools C, E, F, and G in 2010.

Table 2. Descriptors of Student Populations by School

<table>
<thead>
<tr>
<th>Student Populations</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economically Disadvantaged</td>
<td>57%</td>
<td>62%</td>
<td>89%</td>
<td>5%</td>
<td>71%</td>
<td>82%</td>
<td>--</td>
</tr>
<tr>
<td>Limited English Proficiency</td>
<td>24%</td>
<td>22%</td>
<td>53%</td>
<td>2%</td>
<td>45%</td>
<td>43%</td>
<td>--</td>
</tr>
<tr>
<td>TAKS (State test) Grade 4 Math</td>
<td>78%</td>
<td>88%</td>
<td>63%</td>
<td>99%</td>
<td>88%</td>
<td>84%</td>
<td>--</td>
</tr>
<tr>
<td>TAKS Grade 4 Reading</td>
<td>79%</td>
<td>81%</td>
<td>70%</td>
<td>98%</td>
<td>81%</td>
<td>83%</td>
<td>--</td>
</tr>
<tr>
<td>Hispanic</td>
<td>54%</td>
<td>38%</td>
<td>81%</td>
<td>5%</td>
<td>77%</td>
<td>75%</td>
<td>--</td>
</tr>
<tr>
<td>White</td>
<td>37%</td>
<td>35%</td>
<td>6%</td>
<td>89%</td>
<td>18%</td>
<td>23%</td>
<td>--</td>
</tr>
<tr>
<td>Black</td>
<td>23%</td>
<td>9%</td>
<td>4%</td>
<td>4%</td>
<td>1%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>&lt;1%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Native American</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>0%</td>
<td>0%</td>
<td>--</td>
</tr>
</tbody>
</table>

* G is a private school. The student population is predominately White and the school charges tuition (about $10,000-$13,000 in 2008, 2009, and 2010) and offers scholarships.
Once students know their school placements, the group of students assigned the same school begins collecting data on their school community. I 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 then visit the communities that feed into the schools and meet with parents and school personnel. Finally, they enter the school and join an elementary class. At each phase, students collect qualitative and quantitative data. During class, I offer simple instruction on data collection and the work of social scientists as the class takes on the work of social scientists.

**The community and the school**

*I remember when we went out into the community and got to talk to different people in the community and I thought it was good because it was something I never thought about—taking the time and getting to know the area around the school.* (Interviewed Teacher Candidate)

The first series of assignments facilitate the entry of pre-service teachers into their school communities, and culminates in a community entry portfolio. Working in small groups, the young teachers conduct electronic archival research by searching and recording key information from school, realtor, school comparison, and community websites. They then conduct public opinion surveys about what people know and think about the school community. While the public opinions vary, they tend to be more positive for the private school than the public schools with more economic disadvantage and/or racial diversity. Thus, the nascent teachers enter the school communities influenced by public opinion, which they scrutinize analytically later in the semester. One student interviewee described the difference between public opinion and personal experiences within the school,

*I found out that a lot of people had a negative view of the school....But I found it interesting because I was actually placed there and I knew what the school was like and there was still learning going on and it wasn’t a dangerous environment. So, I think that sometimes what people think may be happening hinders them from being able to give their kids just as good an opportunity [as] a school that might have a better SES [socioeconomic status].*

After locating the community on the map, students visit their school communities. I encourage carpooling, but insist they walk around the community and interact with places and people in triads, pairs, or as individuals if they feel comfortable. 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. One student recounted his experiences of community observations,

*I felt a little awkward, because you know in class Dr. Huckaby was like don’t bring this huge thing and walk around taking notes, but I felt like, even still... I felt like that maybe people were looking at me like, “What’s he doing?”*

The teacher candidates, as a team, make descriptive fieldnotes and collect quantitative data as they visit specified places in the community to buy groceries, mail a letter,
cash a check, seek child care, buy gas, clean clothing, obtain news in print, eat a prepared meal, obtain medication, borrow or purchase a book, seek medical care, seek entertainment, exercise, and obtain hair or beauty care products.

Students visiting the communities of the more affluent and private schools tend to offer short descriptions of the communities and frequently use the word *nice* as exemplified by the following excerpts from their fieldnotes:

It looked like a nice, older neighborhood. It seemed like a good, nice community.
The neighborhood was very nice. I was surprised at how nice it was.

I believe they find the shorthand descriptions of affluent neighborhoods sufficient and meaningful even though the description is thin and I strongly encourage rich, thick descriptive details that a stranger would understand. The descriptions for the public schools, however, were longer in length:

It was in, I guess, not as like high-class… it just didn’t seem safe, and there was more trash and it didn’t seem family oriented. I mean it wasn’t that bad where we were like scared or anything, it just seems like in Fort worth I didn’t realize how you can have really nice houses and then like really low class like all in the same place.

The descriptions of communities surrounding the public schools, particularly the schools with more students of color contrasted the descriptions of schools with predominantly White student populations. The students use their own home communities as the comparison for the school communities, and the following data pairing illustrates:

**Private School:** It was kind of like where I grew up, you know, with everything kind of at your fingertips.

**Public School:** I never realized they don’t have a lot within the community… they have to travel…. So everything is further away from them.

Some students noticed how their classmates responded to the communities and described their experiences during the interviews with the graduate student. One student expressed her surprise,

*What surprised me...some of the things people would voice about how the project made them feel.... Like they would feel uncomfortable in a neighborhood if it was loud music or if it was around an area that looked a little bit more rough and I thought like in a way that it’s not disrespectful, but it’s just wasn’t being open-minded, because that’s where people live.*

For students whose home communities are more like the communities surrounding the public schools, the lesson contains an additional layer. A student visiting the community around a public school shared her feelings about being in the community as compared to her classmates’ experiences,

*I felt it was a safe community. I think maybe for me I have a little bit of bias just because of how I grew up. Like certain things that might scare some people, like*
burglar bars on a window, that wouldn’t bother me as much as maybe somebody else, who was new to something like that.

Another student assigned to the private school also described the community visit during the interview,

There was like no one walking around so it was kind of eerie, but it was... very suburban, kind of high-middle class.... I was supposed to go to a grocery store in his community, but [elementary student] had told me previously that his parents only shopped at Central Market, so I went to his community. I did mail a letter in his community, and then I found a grocery store in his community, but then I went to Central Market to do my price stuff.... Everything is ridiculously expensive.

Because the school placements vary by part of town and type (public or private), perspectives and experiences of socioeconomic class, race, and geographic location are embedded in the data students collect. To facilitate students’ entry into the schools, I organize a panel of school personnel and school/community members for each school’s pre-service teachers. After the panel, students tour the school campus and meet their mentoring teachers and the elementary school students. Students show great interest in the school similarities and differences. Since 2008 when I introduced the school panels to the community entry projects, students have expressed that they feel well prepared and comfortable in the schools after the community entry project.

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 school holidays; images, posters, and other objects that occupy the school hallways; demographics of personnel on the school campus; content and images of social studies, mathematics, language arts, and literature texts and textbooks; and observations of interactions among class members (students and teacher). I ask them to pay close attention to race, class, gender, religion, ability, language, sexual orientation, age, and individualism whenever possible, and encourage them to look for explicit and subtle examples. We spend the last third of the semester conducting equity audits using the data they collected. (For more detailed description of these equity audits see (Huckaby, 2010a, 2010b).

**Impact of the equity audits**

Style (1988) 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. The equity audits challenge students to see the schools and communities more directly.
Some students find the semester-long lesson relevant and beneficial in terms of social studies:

*I think that it was a lot more relevant than say, us sitting in class all semester and being told, “Okay, were gonna create a history lesson.” Because in a way we learned how to not be biased so that we could help change history... and teach it from all perspectives and not just one perspective.*

Others see the ways the course helps them better understand the community of their school:

*[G]oing in and actually talking with the community and the parents and the children, you get a whole different point of view of what their culture is. So I think it’s crucial to not only, you know, look at the surface of things, but you have to deeply investigate really and I think that going to the actual people in the community is the most crucial thing.*

The course is not without its challenges. A strong proportion of the students find the series of activities intimidating:

*I was intimidated by it because I was just like, “Oh my gosh, this is going to be so much.” ... the more I worked on it, I was like, “Oh, it’s not so bad being familiar with [school community].”*

I also experience the course as intimidating, particularly during the middle of the semester when volumes of data are submitted by the students for grading and compilation for their analytical work. Much like the student who made the following comment, I believe the work in the course is worthwhile:

*I was so intimidated.... I mean, I think we learned a lot... like working in groups... how all the communities were similar and how they were different. So, I mean it was a good experience overall. It just was a lot of work and a lot of stress.*

Some students, however, did not notice the value of their investigations into the implicit curriculum at the time of their interviews as two interviewees explained,

*It was just kind of boring...I was a little overwhelmed
Honestly, I kind of thought it was pointless.... Not necessary, because we get their file beforehand so we know where they’re from, we know what their parents do.*

The sequence of assignments that lead to the equity audits is indeed 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. I have noticed that the students’ analytical reflections on biases seem less sharply personal and the pre-service teachers seem less defensive about the inequalities and discrimination as they explore and share their research findings, than they did when I taught these ideas through course readings, lectures, and discussions. One nascent teacher explained in her interview,
I think that [the class is] valuable and ... in the future I hope it’s not something that’s changed.... I think that it was worth it and I think that it was important for us to look at ...the communities around the schools [where] we could potentially be working.

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. Some pre-service teachers leave the course with thoughts and intentions on equity in education like the following:

I never knew about that [bias in texts].... It just shows you have to monitor everything before you put it out there.... Once you become a teacher you can start advocating for getting more diversity in textbooks and in just the books the kids are reading.

My class [for the semester’s placement] has 1 Caucasian student and the rest is Hispanic. Some classes have like one African American student...I always wonder how do those student feel—like they fit in.... They look like they’re fine, but I just wonder, “How do they fit in?” Now, the school that I want to teach at... I want it to be kind of mixture maybe. If possible. I mean if not, it doesn’t really matter to me. I just want to feel like I fit in the school.

I think [equity] will be something that I need to keep myself really aware of because I think it’s one of those things that if you don’t think about it you might not necessarily have equality and equity... so I think it’s something I’m just going to really have to think about to make sure what I am doing. Equality is a huge thing in being a teacher. You want to treat all of your kids equally, but you have to remember where they come from and their different backgrounds because those are obviously going to affect your view of them.

I want all the students to have an equal opportunity to learn.... I think that part of my job as a teacher will be making myself equally available to all the students I teach.

The equity audits are 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. Working through the data analyses allows students to explore potential collective biases more systematically and less personally than other methods I have tried.

References

IX Mathematics Education
17. Uses and Goals of Mathematical Tasks: An Experiment with Pre-service Teachers

Alexandra Gomes
CIFPEC/ Institute of Education, University of Minho

Introduction

No one doubts that “what students learn is largely defined by the tasks they are given” (Hiebert & Wearn, 1993). Not only should we use tasks that involve significant mathematics and stimulate students to make mathematical connections, we also need to be aware of our intentions, in using a certain mathematical task.

In this paper we will describe a model to examine the use of mathematical tasks, in teacher education, proposed by Liljedahl, Chernoff and Zazkis (2007) and based on this model we will describe an experiment involving a task and pre-service teachers.

The model

Tasks are used all the time and for a variety of goals. Even the same task can be used for different goals. The task-related activity which takes place is highly dependent on: how the task is prepared; how the task is presented; teacher-learner interactions during the activity; and how the work is debriefed.

When we use a mathematical task we, of course, use mathematical knowledge but since we work within a classroom we also use pedagogical knowledge. Our intentions in using the task also relate to the development of mathematical and pedagogical knowledge in our students.

In order to untangle this complexity, Liljedahl, Chernoff and Zazkis (2007) propose a model that disaggregates mathematics from pedagogy and allows the examination of the use of mathematical tasks in teacher education, from a number of different perspectives.

In the following grid (from Liljedahl, Chernoff and Zazkis, 2007), each cell can be read as “the use of x to promote understanding of y”.

<table>
<thead>
<tr>
<th>GOALS</th>
<th>Mathematics (M)</th>
<th>Pedagogy (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U S A G E</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mathematics (m)</td>
<td>mM</td>
<td>mP</td>
</tr>
<tr>
<td>pedagogy (p)</td>
<td>pM</td>
<td>pP</td>
</tr>
</tbody>
</table>

Let us begin by describing in more detail the sense of each cell.

*The use of mathematics to promote understanding of mathematics* (mM)
When we use a mathematical task our intention is to address some mathematical idea. If we need to address a specific idea then the design and development of the task is
much more challenging. This implies that, we need to have a “deep and diverse understanding of the mathematics embedded within the task” (Liljedahl et al., 2007, p.240).

**The use of pedagogy to promote understanding of Mathematics (pM)**

When we use a mathematical task in a class, even though it may be a good mathematical task, and we have a good knowledge of the task, this may not be enough to have a significant mathematical activity. Pedagogical task knowledge is also important in order to release the mathematics within the task. Therefore, we need to have a profound knowledge and understanding of what students know and what kind of procedures should we undertake in order to mobilize that knowledge. These are important conditions to effectively use a task and make the most of it.

**The use of mathematics to promote understanding of Pedagogy (mP)**

This aspect is more related with the context in which the tasks are developed. “Mathematical tasks provide a context within which to explore issues such as: the nature of mathematics, assessment, constructivism, social constructivism, group work, and so on.” (Liljedahl et al., 2007, p.240). It is then important that one knows the affordances and limitations of a task in this regard. For instance, an exercise, with a procedural approach and a closed path is not a good task to explore problem solving and reasoning. It is also important to know how the task will progress within a classroom context. Of course this requires knowledge of the classroom and its dynamics and also be conscious of the intended goals.

**The use of pedagogy to promote understanding of Pedagogy (pP)**

Again, the knowledge of the limitations and affordances of a task may not be enough inorder to release all the richness of a task. So, according to the authors, teachers “must be able to orchestrate the emergence of the affordances from within the task”. (Liljedahl etal., 2007, p.241) Teachers need to know the embedded pedagogical affordances of the task and also how to manage them within the classroom. This model provides a good framework to analyse mathematical tasks, forcing teachers to reflect upon the intended uses and intended goals of a task and also the qualities of a good mathematical task.

**The experiment**

In this section we will relate an experiment that took place with pre-service teachers and is composed by two phases. In the first phase, we proposed a mathematical task to a class of pre-service teachers (future primary school teachers). The task was explored and then they were asked to adapt the task and implement it with their students, in primary school (second phase).

**First Phase**

The following task was proposed to a class of pre-service teachers:

*Exploring polyominoes*

Polyominoes are shapes created by joining, side by side, congruent squares along shared edges.

If we have only 1 square, we have 1 shape - Monomino.

If we have 2 squares, we have 1 shape - Domino.

If we join another square, we will have 2 different shapes – Triominoes.
1. Considering 4 (5 or 6) congruent squares, how many different shapes can you get?
2. From the shapes you got with 6 squares (hexaminoes), which ones are networks for the cube?

This kind of task is still not usual for the pre-service teachers. After discussing the meaning of polymino and what was meant by “different shapes”, the pre-service teachers started their exploration in pairs. With this particular task we intended to explore issues pertaining to the beliefs of Preservice teachers with respect to:
- the nature of mathematics;
- what it means to learn (and teach) mathematics and;
- the creative process of problem solving.

So, the principal goals can be classified, using the described model, as mp. Of course, it was also our intention to explore some mathematical ideas like:
- symmetry;
- area and perimeter;
- spatial thinking;
- mathematical reasoning;
- …

These ideas emerged during the exploration carried on by the pre-service teachers and were addressed and discussed. So, we also used the task and the mathematics embedded inside it to promote understanding of mathematics. Referring to the first question, we found out that the pre-service teachers’ major concern was to find every polymino. There was not a great concern for organizing the answer or to try to justify whether they discovered all of the shapes. This made us reflect upon the importance of proposing tasks that challenge their beliefs about what it means to “do” mathematics and makes them understand the importance of organizing their reasoning and justifying their procedures. It should not be enough, for them, to just do things without knowing (or even questioning) why they do them.

As for the second question, they had some difficulties in “seeing” that some shapes were nets for a cube (they had to try with material) and again, they didn’t try to justify why certain shapes aren’t nets for cubes. This confirmed the significance of addressing some mathematical ideas, like spatial thinking, but also the importance of using the task to access topics related to the pedagogy of mathematics.

**Second Phase**

In the second phase of the study, pre-service teachers were asked to adapt the task, to present it to their students (children) and after the implementation, to write a small reflection upon what went on in the class. We will relate two different adaptations, done by two groups of pre-service teachers. In the first one, the group of pre-service teachers used only the first question of the task
- exploring different shapes. This task was used with a 3rd grade class (8-9 years old).

The goals stated by the group of pre-service teachers for this particular task were:
- Work in groups (mP);
- Manipulate didactical material (mP);
- Discover new mathematical knowledge (mM);
- Reflect upon this new knowledge (mP);
- Represent/draw the conclusions (mP + mM);
- Discuss with colleagues (pP)

Looking at these goals, and using the model above, we can see that they relate essentially to mP (1, 2, 4, 5) and to mM (3, 5). For the exploration of the task, children were organized in groups of 3 and each group was given a bunch of paper squares. Pre-service teachers started by explaining the meaning of polyminoes and let children explore. After some attempts pre-service teachers felt the need to clarify that shapes could not be repeated.

At the end, a member of each group presented one of the shapes to the whole class. In the reflection pre-service teachers wrote, after the implementation, they said that children were happy and motivated during the exploration of the task. That surprised the pre-service teachers that did not expect such involvement. We must have in mind that this kind of task is not very used in primary schools. Teachers tend to use exercises and closed tasks and not problems or investigations. Also surprising for the pre-service teachers was the fact that children were focused and not making much noise. This was interesting because often teachers avoid using manipulatives and working in groups because children make noise. Pre-service teachers also referred that the sharing of ideas (results) was very interesting. Unfortunately they didn’t provide us data of the discussion part. As a conclusion of their reflections, they said that this kind of tasks should be used more often.

The other group of pre-service teachers used only the second question of the task – discovering nets of a cube. The task was used with a 4rd grade class (9-10 years old). Their goals, as they sated, were:
- Find criteria for discovering cube nets (mM + mP);
- Discover the different nets for the cube (mM).

These goals relate to mM (1, 2) and mP (1) of the model. As in the other adaptation, children were organized in groups of 3 but in this case, they weren’t given any material. Pre-service teachers asked children to draw, in squared paper, different shapes using 6 squares (the number of faces in a cube). Then they would select which of that shapes were nets for the cube. After some difficulties Pre-service teachers felt the need to clarify some issues, namely:
- squares could not be joined by the vertices, only by the edges.
- reflected or rotated images count as one.

Pre-service teachers organized the work so that, as each group found 7 nets, a representative student went to the board and presented “their” shapes to the whole class. Students were encouraged to search for the 11 nets. This suggests that pre-service teachers tend to emphasize the results (even though they referred that the most important was the comprehension of the process). After the class, pre-service teachers wrote their reflections. They felt that the task was too abstract and that they should have given some support (manipulative). They also mentioned that the class should have been more dynamic. These comments mean that pre-service teachers don’t have the necessary pedagogical task knowledge to properly explore the task. They also thought that the concept of reflection and rotation should have been discussed in the beginning and that more mathematical contents should have been explored. In this case we notice that the mathematical aspects of the task were not sufficiently explored by pre-service teachers.
**Final considerations**

Mathematical tasks are used all the time and for a variety of goals. A task is not necessarily “good” or “bad”, but even a potentially good task can become a very poor one. When using tasks, teachers need to have a deep knowledge of the mathematics inside the task and of the mathematics that can be reached with the task. Also fundamental is the pedagogical knowledge of the task that enables it to become fruitful. Teachers should think about why they are using a certain mathematical task with their students and how they are going to use it. As mathematics teacher trainers we must be very careful in selecting tasks and be conscious of our goals in using the tasks.

**References**

18. Pattern Tasks with Geometric Transformations in Elementary Teachers’ Training: Some Examples

Isabel Vale & Lina Fonseca
School of Education of the Polytechnic Institute
Viana do Castelo, Portugal

Abstract

Patterns gave many opportunities for the study of mathematical concepts and the development of mathematical process. It is also an opportunity for students of all levels to develop mathematical knowledge connecting different subjects in different contexts. We are particular interested in patterns and geometric transformations in a teacher training course. We developed an exploratory study with elementary preservice teachers when they worked with challenging tasks looking for geometric transformations that underlie the patterns constructed. According to Preservice teachers the options made in this teacher training course seem to be adequate to the challenge future teachers will face in schools.

Keywords: patterns, geometric knowledge, geometric transformations, teacher training.

Introduction

Considered mathematics as the science of patterns (Biggs e Shaw, 1985; Devlin, 2002; Goldenberg, 1998; Mottershead, 1985; Orton, 1999) it was the start point for our work. Patterns gave many opportunities for the study of mathematical concepts and the development of mathematical process as problem solving, communication, reasoning and proof, important features for fostering the mathematical power of students.

At Portugal we have new national mathematics program at elementary levels, (grades 1-9) where patterns, algebraic thinking and geometric transformations have a more emphasis and a change of a paradigm. So it is important that mathematics education pay attention to this changes, in order that our future teachers have an adequate preparation when the new curriculum were implemented. In this study we are concerned with patterns and geometric transformations.

Theoretical perspectives and methodology

The most widespread connection of patterns with mathematical concepts it is at algebraic field. At elementary school algebra is approached through recognition of pattern and consequent looking for generalization in an informal or formal way depending on the level of students. Most of the patterns studied are those that we call growing pattern.

The type of pattern that we are now interesting is someway different from those that we studied to develop algebraic thinking: the geometric patterns. We can find patterns everywhere around us, since flowers to buildings. In mathematics classes we must explore patterns from different sources; to look beyond the boundaries of school,
city our different cultures, enrich students experiences in geometry. There is much-geometry to be explored in patterns, particularly, geometric transformations.

To provide a definition of pattern it is difficult. Sawyer (1995) says that a pattern is any kind of regularity that can be recognized by the mind. Pattern that we are interested indeed contains some sort of regularities as matching, order, symmetry, repetitive and nesting. But also several important mathematics ideas such shape recognition, congruence, similarity and tessellations (Frobisher, Frobisher, Orton & Orton, 2007). Include also another idea from Zusne (1975) that this kind of pattern is like a configuration consisting of several elements, which somehow belong together.

An ultimate aim of teaching mathematics is to develop in students the ability to generalize in a host of contexts, not only in number but also including shape and space. Teacher has an important role in the classroom as mediator between students and knowledge. They need to organize the teaching and learning in a way that students can get involved in mathematics. As patterns are transversal features of mathematics, children need to work with them in all contents. Preservice teachers need to study and work with patterns, to develop competences in this subject in their teacher training course to do the same in their classrooms and to aid students to observe, to conjecture, to investigate, to communicate, to recognize invariants and look for patterns (Hefendehl-Hebeker, 1998). If we understand mathematics as the science of patterns and as they patterns appear in all mathematical contents, so preservice teachers need to work with patterns in different subjects with different perspectives.

Geometry is an important subject to be worked in schools because it allows us to perceive our real world, it’s necessary also to interplay between concrete and abstract side of geometry and this is a challenge to a teacher. Besides our students have low performance levels in items related to geometry. Visualization in mathematics is in renaissance, but little pedagogical efforts seems to be invested to implement it. Like Hershkowitz (1998) said, may be that some mathematics teachers possess a naive assumption that the human beings are born with visual thinking abilities that are used when necessary and school don’t need to develop them. Dreyfus (1990) says that visualization plays an important role to student reasoning. Besides this visual reasoning has low status because it is assumed as a preliminary stage of reasoning process. So, mathematics learning must include programmes that compel students to think visually and they can develop this ability through experiences in situations that require such kind of thinking. To foster visualization it is needed to develop the “geometrical eye” of students and teachers (Fujita & Jones, 2002).

Nowadays in Portugal, as it was referred before, we have a new Mathematics National Program (ME, 2007) that emphasizes the study of rigid motions/geometric transformations since early grades (grade 1-2). To implement this program preservice and in-service teachers need to be prepared in this subject. As teachers educators, in an elementary teacher training course, we must be aware to these new approaches of our program, so future teachers prepare their own students with solid mathematical knowledge for their critic adult roles in an information-rich society.

We design a study that intends to describe and to analyze the work developed by preservice teachers when they construct and look for patterns in rigid motion/geometric transformations. In particular we want: (a)to promote the development of mathematics knowledge on geometric transformations and its didactics for elementary grades (1-6); (b) to develop competences in observing; noticing patterns; conjecturing; testing and refining conjectures; justifying; proving; and (c) to adapt and construct didactical materials to explore this subjects. According to these goals we focus on an exploratory qualitative approach. Data has been collected through problem solv-
ing tasks, observations and interviews. Data analysis was in a holistic, descriptive and interpretative way.

The study we will describe is included in a large research project Mathematics and Patterns: perspectives and curricular experiences of students and teachers\(^9\). The project is being developed with two main groups: students (including preservice teachers) and teachers. We work with some students of preservice teacher training course (grades 1-6) at their last year of mathematics preparation in two disciplines, Geometric Transformations and Didactics of Mathematics. In these disciplines we want to promote the development of mathematical and didactical knowledge, particularly on geometric transformation, and of competences in observing and noticing patterns, conjecturing, testing and refining conjectures, justifying and proving. To achieve these goals we need to organize a learning environment so that preservice teachers can solve and explore problem tasks, and also to get involved in class discussions.

**Geometric transformations and patterns: some tasks with elementary preservice teacher**

We will present some examples of the tasks with preservice elementary teachers in the two different disciplines. In the Geometric Transformations discipline preservice teachers began to study the geometric transformations like translations, rotations, reflections and glide reflections. They worked with the definitions and explored and analyzed properties of the transformations. During some classes was used an application of dynamic geometry. This one made possible that features which maintain invariant, gain more easily relevance and may contribute to discover patterns and to formulate conjectures, and consequently proof can appear plain of significance.

After this kind of work they were challenged with the following task: “Imagine you are a designer in a factory that makes wallpaper. A customer want new wallpaper made by a motif he chooses. Please create new wallpaper patterns proposals with this motif”. This is the motif brought by the customer. Preservice teachers created different wallpaper patterns and were asked to identify the geometric transformations that underlie each one of the patterns created.

To do so they need to look to the patterns and “see” the geometric transformations that are not always explicit. This kind of task needs, in the sense of Fujita & Jones (2002), the “geometrical eye” and develops visualization competences of the preservice teachers. Firstly preservice teachers looks to the patterns using a global apprehension of the figures, but after that they went on the analysis using a punctual apprehension of the figures, relating the original point and the corresponding transformation point. Preservice teachers identify different kind of geometric transformations, like translations, rotations, reflections and glide reflections, as is shown in figures.

---

\(^9\) The project is supported by FCT (PTDC/CED/69287/2006) and is coordinated by Isabel Vale
Secondly they identified too some of their compositions, for example, the composition of two reflections of parallels axis, the composition of two half turns with different centres, the composition of two reflections of concurrent axis and they conjecture about the existence, in each case of just one geometric transformation equivalent of the compositions. To test the conjectures with more examples, preservice teachers used an environment of dynamic geometry (Geometer’s Sketchpad).

After testing the conjectures students looked for a proof to each case.

The Geometer’s Sketchpad was used to explore examples in the case of the compositions of two reflections with parallels axis. As a student move the point D or any vertex of the triangle [ABC] he/she saw the variation of the distance between the points D and E, that reflect the distance between the two parallel axis, and the variation of the lengths and the angles of the triangle, but he/she also saw the invariance of the ratio between the distance of a point (for example, A) to his transformed (A’) and the distance between the two axis. This ration is invariant and always equal 2. Get an explanation to understand why this happens was the goal of the students when they looked for a proof.
When preservice teachers look for features that repeat in a problem; when they intend to understand the reasons for the repetition and observe the relations that maintain invariant when all around changes; when they intend to understand and explain the reasons that justify these relations; then they develop their mathematics comprehension and competences in a way close that of mathematicians. Preservice teachers also develop a more dynamic conception about mathematics and they find out that patterns are underlying to all mathematics.

In Didactics of Mathematics discipline, after the initial study of geometric transformations, preservice teachers have to look for this topic in a didactic perspective for 1-6 grades students. So they were firstly challenged to explore real images of embroideries, pottery, floor and wall tiles, tessellations, friezes and to identify and to explore the geometric transformations involved. The goal of this kind of tasks was to aware preservice teachers that, like Orton (1999) said, geometric patterns are present in everyday life. They also analyze a didactical learning sequence for study geometric transformations and tasks that can be used with elementary schools students. We can illustrate some examples used during these classes.

Preservice teachers are asked to construct a motif that must not have reflection axes, using a square tile. After they must to make friezes and tessellations and identify the geometric transformations that underlie the pattern constructed. The figures show one student proposal presented.

Figure 4.

The motif chosen was made in a transparency to be easier to verify the geometric transformations used. This kind of material revealed more easier to work with young children because of it versatility. Another proposal it is to investigate the rotational symmetries of the geometric forms bellow. The exploration presents a very good way to work we elementary school students. With this materials they can analyze more easily the existence of rotations with, for example, a quarter turn and half turn because the geometric forms were inscribed in a “portractor”.

158
Preservice teachers are also challenged to work with pentominoes. First of all they solve the follow problem: “To the school’ party it will be need to put together five small squares tables. Show the different arrays of putting together the tables, knowing that two squares need to have a common side”. To solve this problem preservice teachers constructed all pentominoes. Observed the twelve pieces and discovered which kind of symmetry has each pentominoes.

Tessellations offer rich classroom interactions that allow students to realize, for instance, that the tiled floor, their desk rest on is a tiled plane. The mathematics associated with geometric transformations further connects students to their mathematics education. So this content provides a rich opportunity for preservice teachers to connect and motivate geometric learning in their future classrooms. So preservice teachers were asked if all the pentominoes tessellate the plane. The answer is “No”. They thought that only pentominoes like “I” or “X” do it. To homework they were asked to experiment if they can get a tessellation using each one of different pentaminoes. They were enthusiastic because they concluded that all pentominoes could tessellate the plane and they conclude also that it’s possible to put together the same pieces in different ways, as it is shown in figures.

After that they look for geometric transformations used in each of their tessellation. These students also constructed polygons patterns gluing different colored paper rectangle. The polygons patterns are generated using the principles: (a) a simple rule is used to overlap the rectangles; (b) the angle of overlap rotation of the consecutive rectangles is a factor of 360º (so that after a fixed number of rectangles the pattern is complete and symmetrical).
The Fig. 7 represents some polygon patterns constructed with rectangles. Each new rectangle is overlapped so that one of its diagonals coincides with one diagonal of the previous rectangle. After that, by observing these polygons patterns it is possible to explore geometrical relations between several shapes that emerge, like classifying polygons, analyzing the congruence or similarity of triangles, quadrilaterals, hexagons, and so on. Moreover of these concepts related to geometric transformations it’s possible to explore, for example, counting, area and perimeter.

To apply the knowledge acquired we proposed to preservice the construction of a kaleidoscope. Nowadays are available several types of kaleidoscopes that delight us when we turn it and look. They are made with mirrors, triangular prismatic mirrors and a lens multifaceted that originate several and complex images. We proposed to our preservice teachers the constructions of simple kaleidoscope. They used reflector paper to construct triangular prisms. Those triangles could be equilateral or isosceles and acute or obtuse ones. The Fig.8 show different phases of the construction of an kaleidoscope.
We propose this task because kaleidoscopes are applications of the reflections and constitute an attractive material for elementary school students construct and explore these subjects.

We thought that the tasks presented in this teacher training course allowed pre-service to be more confident to face similar tasks with their own future students because they experimented the doubts, the uncertainty, the feeling of not to know the answer and not to know how to explore the situations presented and they gained more confidence in their own knowledge to face “new” and challenging situations.

Some final reflections

After this exploratory study and with preliminary results it’s possible to say that pre-service teachers revealed more interest to explore geometric transformation in the context of frieze and wall paper patternsthey construct by their own, because this is a “challenging task” and become more confident and aware to face the implementation of the new mathematics programme to elementary school; they learned more deeply to recognize geometric transformations and their compositions in a context; despite they revealed some difficulties in visualizing “I have difficulties in visualizing: at the beginning I need to use the motif in paper and turn, flip and slide it to “see” if the geometric transformations I had imagine are or not real” and in justifying and constructing proofs for their own conjectures, they defend that “it is important get involved in tasks like these ... to make proofs because despite proving is a very difficult task ... how can I explain this ... proof compel us to think a lot and we will be more conscious about our knowledge and ourdifficulties”.

We expect that our instruction with preservice teachers it will be a way for they follow and engage youngsters in their classrooms. According to preservice teachers opinions the options made in this teacher training course are adequate to the challenge
future teachers will face in schools. They defended that they can use the didactical proposal for this subject with his own children’s in elementary schools.

References

Learning Rational Numbers:  
A Study on 6th Grade Students’ (Mis)Conceptions of Fractions

Ema Mamede and Paula Cardoso  
CIFPEC, University of Minho  
Sec. School Alberto Sampaio  
Braga, Portugal

Abstract

This study compares students’ understanding of fractions across quotient, part-whole and operator interpretations of fractions. Two questions were addressed: (1) How do students understand the equivalence and ordering of fractions in these interpretations? And (2) how do students master the fraction representation in these interpretations?

A survey was conducted using an individual questionnaire with 11 and 12-year-olds Portuguese students (N=158), who were familiar predominantly with part-whole and operator interpretations, but not with the quotient interpretation. A quantitative analysis showed that students performed better on equivalence and ordering tasks presented in quotient interpretation than in part-whole and operator interpretations; they performed better on labelling tasks in part-whole and operator interpretations than in quotient interpretations. Educational implications of these results will be discussed.

Background

Fractions are undoubtedly one of the most problematic topics in mathematics education (Behr, Wachsmuth, Post & Lesh, 1984; Kerslake, 1986; Kieren, 1993; Streefland, 1991). Several authors suggest that the knowledge of fractions demands the understanding of ordering and equivalence of fractions and the ability to use distinct modes of fractions representation, in different interpretations of this concept (Behr, Wachsmuth, Post & Lesh, 1984; Nunes, Bryant, Pretzlik, Wade, Evans & Bell, 2004; Mamede, 2008; Mamede & Nunes, 2008).

Literature presents distinct classifications of interpretations that might offer a fruitful analysis of the concept of fraction. Behr, Lesh, Post and Silver (1983) distinguished part-whole, decimal, ratio, quotient, operator, and measure as subconstructs of rational number concept; Kieren (1993) considers measure, quotient, ratio and operator as mathematical subconstructs of rational number; also Marshall (1993) based on the notion of schemas presents a similar classification of Behr’s and colleagues distinguishing five situations: part-whole, quotient, measures, operator, and ratio. Mack (2001) proposed a different classification of interpretations using the term ‘partitioning’ to cover both part-whole and quotient interpretation. More recently, and following the theory of Vergnaud (1997), which emphasizes the importance of the situations in concept formation, Nunes, Bryant, Pretzlik, Wade, Evans and Bell (2004) presented a classification based on the notion of situation distinguishing quotient, part-whole, operator and intensive quantities situations, according to the number meanings that occur in each situation.

In spite of the differences, part-whole, quotient and operator are among the interpretations identified by all of them. However, there is not much research producing no unambiguous evidence about whether students behave differently when different
situations are used. Literature provides information about students’ difficulties and misunderstanding with fractions (see Behr, Wachsmuth, Post & Lesh, 1984; Hart, 1981; Kerslake, 1986; Mamede & Nunes, 2008). Nevertheless, little research has been produced on the effects of situations on students’ understanding of fractions. This paper focuses on students’ conception of fraction on part-whole, quotient and operator situations of fractions.

In part-whole situations, the denominator designates the number of parts into which a whole has been cut and the numerator designates the number of parts taken. So, 2/4 in part-whole situation means that a whole – for example – a chocolate was divided into four equal parts, and two were taken (Nunes et al., 2004). In quotient situations, the denominator designates the number of recipients and the numerator designates the number of items being shared. In this situation, 2/4 means that 2 items – for example, two chocolates – were shared among four people. Furthermore, it should be noted that in quotient situations a fraction can have two meanings: it represents the division and also the amount that each recipient receives, regardless of how the chocolates were cut. For example, the fraction 2/4 can represent two chocolates shared among four children and also can represent the part that each child receives, even if each of the chocolates was only cut in half each (Mack, 2001; Nunes et al., 2004). Finally, in an operator situation, the denominator designates the number of equal groups into which a set was divided and the numerator designates the number of groups taken. In operator situations, the connection between the numbers that describe the situation and the fraction is created by operating on these numbers. For example, if Bill has 12 sweets and eats 2/4 of them, the numbers 2 and 4 are not perceived directly in the situation; this means that one has to divide the set of sweets into 4 and take 2 groups (Nunes et al., 2004).

By the end of sixth grade (11- and 12-year-olds) Portuguese students are supposed to be fully acquainted with the labelling, ordering and equivalence of fractions in different situations. Nevertheless, Portuguese national tests suggest that students present some misconceptions on this domain. Do part-whole, quotient and operator situations affect students’ understanding of fractions?

Methods

Participants
Seven classes of Portuguese sixth-grade students (N=158), aged 11 and 12 years, from two schools of the city of Braga, in Portugal, participated in this study. All the participants gave informed consent and permission for the study was obtained from their teachers. The two participating schools were attended by students from a range of socio-economic backgrounds.

The teachers of the participants of this study informed the researchers about the type of situations that students were familiarized with. These situations included predominantly part-whole and operator situations, whereas quotient situations were referred by them as a situation poorly explored in the classroom.

Design
In order to have an insight of students’ understanding of fractions when different situations are involved, a survey was carried out using an individual questionnaire comprising tasks related to ordering and equivalence of fractions, and labelling of fractions (with pictorial and verbal support). These types of tasks were presented in quotient, part-whole and operator situations. Tasks involving only the formal sym-
bolic representation of fractions, without any explicit situation, were presented as well and are referred here as algebraic representation.

**The questionnaire**
The questionnaire comprises 30 tasks: 7 presented in quotient situations (QT) (2 of ordering of fractions, 2 of equivalence of fractions, 3 of representation); 7 presented in part-whole situations (PW) (2 of ordering of fractions, 2 of equivalence of fractions, 3 of representation); 7 in operator situations (OP) (2 of ordering of fractions, 2 of equivalence of fractions, 3 of representation); and 9 without any explicit situations, using only algebraic representation (AL). The tasks of the questionnaire were inspired on the studies of Kerslake (1986), Nunes et al. (2004) and Streefland (1991). The fractions involved in the tasks were all smaller than one.

Table 1 shows an example of a task presented in each type of situation and also an example involving the three situations. The fractions were the same across the situations, according to the type of task. Thus, for instance, an ordering task involving 2/3 and 3/5 had a correspondent task presented also in part-whole and operator situations.

| Table 1: Examples of tasks presented involving different situations |
|------------------------|------------------------|
| Situation | Problem | Example |
| QT | Ordering | Three boys are going to share fairly 2 chocolate bars. Five girls are going to share fairly 3 chocolate bars. Tick the right statement:  
- Each boy eats more than each girl;  
- Each girl eats more than each boy;  
- Each boy and each girl eat the same amount of chocolate.  
Write the number that represents the amount of chocolate eaten by each child. |
| PW | Representation (verbal support) | Bill ordered a pizza and divided it into 4 equal parts. He decided to eat 3 of them. What part of pizza did Bill eat?  
- 4/3  
- 3/4  
- 1/4  
- 1/3  
- 3/3  
- Other: ___ |
| OP | Equivalence | Rita and Lewis have 16 caramels each. Rita ate 3/4 of the caramels. Lewis ate 6/8 of the caramels.  
Tick the right statement.  
- Rita ate more caramels than Lewis;  
- Lewis ate more caramels than Rita;  
- Rita and Lewis ate the same amount of caramels. |
| QT, PW, OP | Labeling (pictorial support) | Which figure(s) best represents the fraction 3/4? |

An example of a task without any explicit situations, using only algebraic representation, is listed on Table 2.

| Table 2: Example of a task using only algebraic representation |
|------------------------|------------------------|
| Situation | Problem | Example |
| AL | Equivalence | Tick the right statement:  
- 6/8 is two times 3/4; |
Results

Descriptive statistics of students’ performance on the tasks for each working situation are presented in Table 3, reporting the proportions of correct responses and standard deviations by task and situation. As the problems of ordering and equivalence relate to quantities represented by fractions, they demand the understanding of basic logical aspects of fractions. Thus, the ordering and equivalence problems will be referred here as logic of fractions problems.

Table 3: Proportions of correct answers and (standard deviation) by task and situation (N=158)

<table>
<thead>
<tr>
<th>Situation</th>
<th>Logic of fractions</th>
<th>Labelling of fractions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quotient</td>
<td>.48 (.27)</td>
<td>.20 (.24)</td>
</tr>
<tr>
<td>Part-whole</td>
<td>.44 (.30)</td>
<td>.78 (.29)</td>
</tr>
<tr>
<td>Operator</td>
<td>.35 (.29)</td>
<td>.37 (.29)</td>
</tr>
<tr>
<td>Algebraic</td>
<td>.23 (.19)</td>
<td>.86 (.13)</td>
</tr>
</tbody>
</table>

The following graphs illustrate the distribution of correct responses on the logic of fractions problems (ordering and equivalence) presented in quotient situation (Graph 1), in part-whole situation (Graph 2), in Operator situation (Graph 3) and in problems presented using the formal algebraic representation (Graph 4).
Graph 1 shows that 63.3% of the students gave a correct response in at least half of the questions of logic of fractions (ordering and equivalence) presented in quotient situation; and 9.5% could not succeed in any of the logic of fraction problems presented in this type of situation. When quotient situations were used, only 7% of students gave a correct response to all of the logic of fractions problems presented; and 31% of the students gave a correct response to half of the ordering and equivalence questions.

Graph 2 shows that 60.1% answered correctly at least to half of the logic of fractions problems (ordering and equivalence) presented in part-whole situation; and 21.5% of the students could not succeed in any of these problems, when presented in part-whole situation. When this type of situations was used to present the problems 31.6% of the students answered correctly to half of the ordering and equivalence problems and 7% of them could get all the problems correctly solved.

In operator situations, the students’ performance on problems of ordering and equivalence of fractions is even lower, as only 42.4% of the students were able to present one correct response to at least half of the presented questions. When this type of situations was used, 5.1% of the students solved correctly all the problems of logic of fractions presented to them; and 25.9% gave no correct answer to any of these problems; only 23.4% of the students gave a correct answer to half of the questions.
Graph 4 shows that only 47.5% of the students gave a correct response in at least half of the logic of fractions problems (ordering and equivalence) presented in problems using formal algebraic representation; and 1.3% could not succeed in any of the logic of fraction problems presented in this type of situation. When problems using algebraic representation were used, none of the students gave a correct response to all of the logic of fractions problems presented; and 8.2% of the students gave a correct response to half of the ordering and equivalence questions.

The following graphs illustrate the distribution of correct responses on the representation of fractions problems presented in quotient situation (Graph 1), in part-whole situation (Graph 2), in Operator situation (Graph 3) and in problems presented using the formal algebraic representation (Graph 4).

Graph 5: Proportion of correct answers on problems of representation of fractions presented in quotient situation

Graph 6: Proportion of correct answers on problems of representation of fractions presented in part-whole situation

Graph 7: Proportion of correct answers on problems of representation of fractions presented in operator situation

Graph 8: Proportion of correct answers on the representation of fractions presented using formal algebraic representation

Graph 5 shows that 11.4% of the students answered correctly at least to two-thirds of the problems of representation of fractions presented in quotient situation; and 52.5% of the students could not succeed in any of these problems, when presented in quotient situation. When this type of situations was used to present the problems, 10.8% of the
students answered correctly to exactly two-thirds of the representation problems and 0.6% of them could get all the problems correctly solved.

Graph 6 shows that 77.8% of the students answered correctly to at least to 80% of the representation problems presented in part-whole situation; and 6.3% of the students could not succeed in any of these problems, when presented in part-whole situation. When this type of situations was used to present the problems, 35.4% of the students answered correctly exactly to 80% of the representation problems and 42.4% of them could get all the problems correctly solved.

Graph 7 shows that 31.7% answered correctly at least to two-thirds of the representation problems presented in operator situation; and 27.2% of the students could not succeed in any of these problems, when presented in operator situation. When this type of situations was used to present the problems, 26.6% of the students answered correctly to exactly 67% of the representation problems and 5.1% of them could get all the problems correctly solved.

Graph 8 shows that only 95.5% of the students gave a correct response in at least 80% of the questions of representation of fractions presented in problems using only the algebraic form; and all students answer correctly to at least one problem of this type. When problems using algebraic representation were used, 35.4% of the students gave a correct response to all of the representation of fractions problems presented; and 60.1% of the students gave a correct response to exactly 80% of the representation questions.

Students’ performance on logic of fractions problems (ordering and equivalence) was better when quotient situation was involved. Their success was lower when problems of logic of fractions were presented in operator situation and when this type of problems was presented using the formal algebraic representation. Concerning representation of fractions problems, students’ performance was better either when part-whole situation or formal algebraic representation was involved.

An ANOVA was conducted to analyse the effect of type of situation (quotient (QT), part-whole (PW), operator (OP), algebraic (AL)) and type of problem (logic of fractions, labelling) on students’ performance. There was an interaction effect of situation × problem on students’ performance, $F(3, 471)= 172.57$ (p<.001), indicating that the type of situation affects students’ performance on the tasks. Paired contrasts showed that students performed significantly better on the logic of fractions (ordering and equivalence) tasks presented in QT situations than in AL situations; they performed significantly better on labelling tasks presented in AL than in QT situations (p<.001). Students performed better on logic of fractions tasks presented in OP than in AL situations (p<.001), but they performed better on labelling tasks in AL than in OP situations (p<.001). The students’ performance on tasks involving the logic of fractions (ordering and equivalence) in QT situations is significantly better than their performance on labelling fractions; in PW situations the students’ performance is better on labelling tasks than on logic of fractions tasks; in OP situations there is no significant differences on students’ performance according to the type of task; and in AL situations the students’ performance is better on labelling tasks than in logic of fractions tasks. Table 5 shows the adjusted means and standard errors of students’ performance according to the type of problem they were solving and to the type of situation in which the problem was presented. These results reveal that the type of situation seems to affect students’ conception of fractions.

Table 5: Adjusted Means and Standard Errors (in brackets) of students performance by type of problem and type of situation (N=158)
The type of situation in which fractions are used seems to affect differently the students’ understanding of the concept of fraction. These students were not familiar with quotient situations but they were able to succeed in solving ordering and equivalence problems presented in this situation, in spite of failing in labelling tasks in this type of situations. Their success in these situations suggests that quotient situations easily match with students’ informal knowledge of fractions.

The results also indicate that students can succeed in solving fractions representations problems even without mastering the logic issues of fractions, such as ordering and equivalence of fractions. This was the case of their performance on solving representation problems in part-whole situations and formal algebraic representation.

Our findings also suggest that operator situations are more difficult for students than part-whole and quotient situations. Their levels of success were even lower than those achieved when quotients situations were used concerning the ordering and equivalence problems. Nevertheless, this type of situation was part of their formal instruction of fractions.

**Discussion and conclusions**

The findings of this research suggest that the type of situation in which fractions are used affects students’ understanding of fractions, and that students’ success on algebraic problems does not guarantee the understanding of the concept of fractions.

These results converge with the results of previous research carried out by Nunes et al. (2004), who conducted a survey involving 9 and 11-year-olds students (N=130), to analyse their performance in solving equivalence problems in quotient and part-whole situations. Their results showed that students succeeded on 35% of problems presented in part-whole, contrasting with 66% of success achieved in quotient situation. Also Mack (1990) conducted a research with students of 11-12-years-old (N=8) to analyse their understanding of fractions building on informal knowledge. Mack’s results showed that four out of five students could not compare 1/6 and 1/8 given symbolically; however, these students were able to solve this problem easily when quotient situations were involved.

The idea that the type of situations in which fractions are used affects students understanding of the concept of fraction has becoming more consistent. More recently, Mamede (2008) conducted an intervention to analyse the effects of different situations on children’s understanding of fractions when building on their informal knowledge of fractions. The study involved 6-7-year-olds children (N=37) who were introduced to fractions using quotient, part-whole and operator situations. These children had no previous formal instruction about fractions. The results showed that children performed better on solving equivalence and ordering problems involving quantities represented by fractions in quotient situations, and presented poor performances
when part-whole and operator situations were involved. These results suggest that children easily build on their informal knowledge when quotient situations are involved, but not so easily when part-whole and operator situations are involved. In agreement with Streefland (1991), who referred that fractions evolve from everyday experience of fair sharing, quotient situations seems to be relevant situations to build on students’ informal knowledge of fractions.

Another relevant issue that emerged from our study concerns the wrong idea that students who succeed on tasks of algebraic representation of fractions may transmit to their teachers. Students are able to succeed easily on these tasks even if they only possess a poor understanding of ordering and equivalence of fractions. Perhaps this is due to the fact of learning labels is easier than learning logical aspects of fractions. It is possible for students to succeed on labelling problems, in spite of misunderstand fractions in different situations.

The effect of situations in which fractions are used on students understanding of fractions is a relevant issue for the students’ acquisition of number. More research is needed to address these issues in order to help students to overcome their difficulties.

References


X Reflective Practice
Members of the Reflective Practice TIG were introduced to arts based learning approaches to reflective practice through a mask making workshop. Despite the short time an number of rather beautiful and thought provoking masks were created. Participants were also provided with the following information which underpinned the activity:

*The use of arts based learning as a way of deepening understanding, exploring meaning and prompting action.* (Arts based learning as a journey into new territory and a possible catalyst for new insights often arriving at a clarity and order through metaphor. This can sometimes lead to prompting new action and new directions.)

For a number of years I have been making use of arts based learning as a way of deepening reflection in order to better understand and meet the challenges faced by educators and leaders. These approaches are used in parallel with critical reflection on practice that normally involves logical, linear, language based left brain thinking. These art based activities often encourage a consideration of alternative perspectives. My research suggests that they are not only fun, hands-on and kinaesthetic, but also model and encourage creative thinking. They help the participants to deepen understanding of themselves and the situation and support the accessing of an alternative way of thinking using metaphor and a different kind of language. An arts based learning approach offers another way of exploring, understanding and researching ourselves in the world. It works very well in parallel to our normal modes of thinking and has the distinct advantage of helping us generate new ideas as well as providing opportunities to express ourselves more fully. It’s another kind of research method,

“Arts based research practices are a set of methodological tools used by qualitative researchers across the disciplines during all phases of social research, including data collection, analysis, interpretation and representation.” (Leavey, 2009 ix)

This isn’t about art, but art can happen! All the activities I have led begin with reflection of the subject, continue with engagement in the art based activity and finish with a coaching, non – directive conversation. Often there is a presentation which synthesizes the learning from these experiences presenting a more complex understanding and prompting action.

A review of my work; ‘Here is the essence of the argument: our schooling concentrates on developing the rational, the sequential, the quantifiable. However, people are more complex than that. We know in many ways. We perceive, sense, react, decide and act based on many kinds of information. Some of that information is rational, is logical and sequential. But much of it is not. In order for us to “know” fully, in or-
der for us to think newly, and act well, we need information beyond the objective. We need to have access to the subjective. What are the means by which we can “learn” more about the subjective? According to the practice described here by Hughes, we can learn more about the subjective and the objective by combining them, by combining the study of the objective (in this case leadership theory) with arts-based activity (sculpture). It is the combination described here that frees students to find new meaning, that leads them to think differently, that all but requires them to create new metaphors and apply those metaphors beyond the classroom. (Hornbacher, 2009 p259)

Examples of the range of arts based workshops:
- Using clay sculptures to explore change management.
- Leadership masks, helping people become the leaders they want to be.
- Drawing the organization
- Painting Jungian archetypes – to explore unconscious beliefs
- Dancing- exploring personal life histories.

For a fuller exploration of this subject see Hughes, S.(2009) Leadership, management and sculpture: how arts based activities can transform learning and deepen understanding. Reflective Practice, Vol.10, No.1, 77 – 9

A case study – this is one example of a leadership mask produced in 2009. The mask workshop was one of a series exploring leadership styles and competencies.

The Mask : created in two parts – inside and outside

We hear you (reflection from the facilitator)

Based on the mask and the presentation given to the group, there is me, only me. I am inside, particularly now. The turmoil my family is going through is there, ever present, it is also beginning to define me. My family around the table… stronger than ever. Happiness is spending time with the people you love. All this is hidden, pressed closely and intimately to my face. It informs and colours my relationships with others. How I operate, how I relate to others as a leader is increasingly influenced by my life changes and the illness. Authenticity is in relation to my passions, my simple pleasures. Reality is seen through my eyes. I won’t let you down, I live in the moment and replace stress with what really matters. She spends a long time making the mask, the words are carefully chosen and are redolent of the situation she finds herself in. She
won’t let you down but who is the you, or is it her? Truth is now more important as is the realness of me. The power of this mask is found in the relationship between the inside and outside. The mask vibrates with the tension and power of this relationship. The challenges faced by facing trauma and tragedy shape, mould and define the external mask presented to others and the world. The inner and outer mask seem to be moving closer and some of the words seen on the outer mask take on a poetic resonance that echo the unseen words on the inside: we hear you, cherishing the past. There is a story in this mask, one that suggests an unfolding, ongoing relationship between the story and the mask presented to the world. Life experiences will always inform the way we are viewed and the way we choose to present ourselves and in this case it is urgent and vital. There is a sense of wisdom and clarity that is experienced along with a heart- felt acknowledgement that all is messed up.

We hear you (reflection from the ‘artist’)

This was written some time after the making of the mask and was part of a reflective portfolio prepared for the masters degree. I started to cut out the words, I didn’t want to paint or pretty up the mask, I became extremely focused and shut myself away within the busy classroom. Lots of words I cut from the books I had taken in. I decided that my mask had two sides and the face of leadership professionally was very different from the leadership face at home. So I used words for each area differently. I decorated the outside of the mask with the professional words and the inside with the touchy feely part of me, in my leadership role at home. I found the experience to be very moving. I had achieved a skilful mask conversion from a plain white mask to an emotional outlay of my innermost feelings. Although, whilst making the mask I hadn’t found these emotions to be present I really had not associated the task with personal feelings. But, when it came to speaking of why I did it this way I found myself feeling emotionally drained and surprisingly vulnerable. I was shocked by this lack of professionalism. I can only conclude that through the artistic vent of mask making I had found an outlet. Without the spoken word I had allowed my guard to drop and the usual protection of my somewhat difficult life had been let out. It has almost sneaked out from under the radar if that makes sense. Maybe this is why artists are so emotional? I was surprised by this experience and yet moved enough to write this reflection. I have realized that the mask I hide behind is the job, discussing what the decoration meant to me allowed me to take stock of my very complicated life and recognize that I am coping with a lot of things all at once. This in leadership can be overlooked when situations turn into incidents and when things go wrong at work. Maybe it will help me to understand others as well as myself a little better.

Reflection from the course leader

This was written as feedback to the facilitator. Thank you for leading the session. The students really enjoyed it. A few were quite apprehensive beforehand and worried about what they would do and if they would feel creative enough to produce something meaningful. All said they were surprised by how much they got into it. One in particularly (Jane - she did the very pretty mask with the covered inside) said she was startled at how deeply she felt about it and how it made her think of not just her leadership skills but her whole career and family. Very interesting and I believe very valuable, personal and contextual.
References


I would like to thank the participants who have given me permission to share their work, reflection and insight.