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Inclusive Education in Nigeria—A Myth or Reality?

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Abstract

As democracy entails freedom of association, so should it be for inclusive education in Nigeria. This paper therefore jettisoned the current practice of segregational effort on special education for the challenged and thereby recommended total inclusive education as a better practice for Nigeria classrooms. Practically, it recommended a policy twist in favour of inclusive education as part of the National Policy on Education as well as adequate retraining of teachers in inclusive education pedagogies and provision of abundant resources to support inclusive education learning.

Keywords
Inclusive, Education, Disabilities, Handicapped, Integration

1. Introduction

Inclusive education is the major challenge facing educational systems around the world (Ainscow, 2004). In some developing countries like Nigeria, inclusive education is thought as an approach to serving children with disabilities within general education settings. Consequently the National Policy on Education in Nigeria states that Special Education is created as a formal special educational training given to people (children and adults) with special needs (Federal Government of Nigeria, 2004: p. 47). However, this is contrary to the international practice where inclusive education is seen “as a reform that supports and welcomes diversity amongst all learners” (UNESCO, 2001).

Then if “all human beings are born free and equal in dignity and rights... and they are to act towards one another in a spirit of brotherhood” United Nations Universal Declaration of Human Rights, (United Nations, 1948); there is the need for Nigeria to re-examine and review her national policy on education in favour of inclusive education rather than the so called “special education”. It is even doubtful whether the current National
Policy on Education (2004) gives much support to the realization of philosophies behind the Universal Basic Education (UBE) in Nigeria. According to Adesina (2006), the philosophies behind the introduction of UBE in Nigeria are three-fold thus:

1) The development of the individual into a sound and effective citizen,
2) The full integration of the individual into the community, and
3) The provision of equal access to education opportunity for all citizens of the country of the primary, secondary and tertiary levels both inside and outside the formal school system (p. 35).

The questions which this paper attempted to answer therefore are:

1) How do we ensure “sound” and “effective” citizenship through inclusive education in Nigeria?
2) How do we ensure full integration of the individual into the community through inclusive education in Nigeria?
3) How do we provide for “equal access” to education opportunities in Nigeria through inclusive education?

2. Conceptual Clarification on Inclusive Education

Inclusive education differs from previously held notions of “integration” and “mainstreaming”, which tended to be concerned principally with disability and “special education needs” and implied accommodation of all categories of learners in the classroom (Wikipedia, the Free Encyclopedia, 2014). It is about the child’s right to participate in school’s duty and programmes regardless of his or her disabilities as against special education that is meant for students with disabilities only. According to the National Centre on Educational Restructuring and Inclusion (1995), inclusive education means:

Providing to all students, including those with significant disabilities, equitable opportunities to receive effective educational services, with the needed supplementary aids and support services, in age appropriate classrooms, in order to prepare students for productive lives as full members of society (p. 1).

Consequently, the aim of inclusive education is to eliminate social exclusion arising from attitudes and responses to diversity in race, social class, ethnicity, religion, gender and ability (Vitello and Mithaug, 1988 cited by Ainscow, 2004). In doing so, efforts are made to ensure that diverse learners—those with disabilities, different languages and cultures, different home and family lives, different interests and ways of learning—are exposed to teaching strategies that reach them as individual learners without the stigmatization that comes with separation (NVPIE—Nevada Partnership for Inclusive Education, nd). Hence, inclusive education amounts to equal opportunities for all learners to learn and succeed in the society.

The Education for All agenda of the 1990 Jomtien World Conference was the platform that gave the first attention to inclusive education. According to the conference report, every person—child, youth and adult should be able to benefit from educational opportunities which would meet their basic learning needs (World Conference for Education for All, 1990). Then came the 1994 Education Report which gave the idea of inclusive education a larger impetus. Equally, the marginalization and exclusion of learners from educational system was seriously addressed at the Dakar World Education forum in April 2000 with the following warning that:

The key challenge is to ensure that a broad vision of Education for All as an inclusive concept is reflected in national government and funding agency policies (UNESCO, 2000).

As a matter of fact, inclusive education is to address the educational needs of all learners in a non-threatening and supportive learning environment in order to include learners who were formally disadvantaged and excluded from education because of “barriers to learning”. These barriers may be physical, mental, neurological, mental, emotional, psycho-social, beliefs, colour, racial, religious, socio-economic and gender in nature. Consequently therefore, the UN convention on the Rights of Persons with Disabilities (United Nations, 2006) called on all states parties to ensure an inclusive education system at all levels.

In actual practice, Wikipedia—the free encyclopedia (2014) identified two types of inclusive education thus:

- Partial inclusion where students with special needs are educated in regular classes for nearly all the day, or at least for more than half of the day but would receive specialized services outside the regular classroom such as speech therapy, physical therapy or hearing therapy as the case may require.
- Full inclusion which is the total integration of all students, including those that require the most substantial educational and behavioural supports and services in a regular class.
Regardless of whatever practice is being adopted for inclusive education therefore, it must be noted that the key elements that are involved are that inclusive education is a process of “never-ending search to find better ways of responding to diversity”, to use evidence of various kinds to stimulate creativity and problem-solving in identifying and “removing barriers to education for all”, which is about “the presence of all children in schools, and participating to succeed together”, with equal consideration for “group of learners who may be at risk of marginalization, exclusion or under achievement” (Ainscow, 2004).

3. The Current Practice in Nigeria

By the 2004 Nigeria’s National Policy on Education, a programme known as “Special Education” was designed to cater for three categories of individuals thus:

1) The Disabled including people with physical, visual, hearing, mental, emotional, social, speech, learning and multiple impairments.

2) The Disadvantaged involving the children of nomadic pastoralists, migrant fisher folks, migrant farmers, hunters etc.

3) The Gifted and Talented involving people (Children and Adults) who have high intelligent quotient and endowed with special traits in arts, creativity, music, leadership, intellectual precocity etc and therefore find themselves insufficiently challenged by the regular schools (Federal Government of Nigeria, 2004: pp. 47-48).

Furthermore by the provision of the policy, education of children with special needs are expected to be free at all levels and all necessary facilities that would ensure easy access to education shall be provided to include:

a) Inclusive education or integration of special classes and units into ordinary/public schools under the Universal Basic Education (UBE) scheme;

b) Regular census and monitoring of people with special needs to ensure adequate educational planning and welfare programme;

c) Special education equipment and materials like Perkins brailler, white/mobility care, brailed textbooks, abacus, talking watch, audiometers, speech trainers, hearing aids, ear moulding machines, educational toys, calipers, crutches, wheel chairs, artificial limbs, audio-visual equipment and internet facilities;

d) Special education training on braille reading and writing, typewriter use, speech signs, daily living skills;

e) Special training and re-training of the personnel on capacity building to keep them abreast of latest teaching techniques on various categories of disabilities, the gifted and talented; and

f) A teacher-pupil ratio of 1:10 in special schools (pp. 49-50). Equally the special schools are to arrange for effective architectural designs of school buildings with regular sensory, medical and psychological screening assessments to identify any incidence of handicap.

However, a cursory look at the policy itself shows some contradiction and gaps. For examples, the creation of “special schools” negates the principle of inclusive education which is to provide equal access opportunities to education regardless of any barrier. Equally, why would it be that only the children with special needs shall have access to free education at all levels when provisions are not made for developing the children with special needs technically and in sport areas. Indeed, as well remarked by the National Open University of Nigeria (2006), the content of curriculum and delivery strategies both within the regular system and with children with special needs are subject of questioning. This is because it could be observed that preparatory skills on pre-vocational and vocational orientation as well as recreational facilities for the handicapped are either not there or insufficiently provided in the so called “special schools”. In a situation where regular classes in the cities are overcrowded to the tune of 1:80 teacher-pupil ratio, the vision on ratio 1:10 for inclusive classes may remain a dream.

The special schools are limitedly scattered all over the country and sometimes named after a particular disability to further stigmatize whoever attends such schools. Examples are “Schools for the blind”, “Schools for the Deaf and Dumb”, “Schools for the handicapped”. Even most of these special schools are either owned by individual philanthropists, non-governmental organizations or religious bodies while only few are run by the government (at most one in a senatorial district, making it not more than five in a state). Even though the UNESCO (2008) statistics shows that over 10% or 650 million people in the world are disabled with over 80% of them in developing countries, Nigeria being one of the developing nations lack any census of different categories of her citizens with disabilities talkless of making adequate provision for them. Indeed as cited by Garuba (2003), out of the 10% perceived disabled children in Nigeria, only 0.42% are enrolled in schools as against 67.05% of their
normal school going counterparts. Worse still, the stereotype cultural belief of illiterate parents that the handicapped children are “children from idols” made adoption of inclusive education in Nigeria a myth rather than a reality. Arising from the various observations therefore, the readiness factor and perhaps the desirability of inclusive education in Nigeria as well remarked by Ademokoya (2003) and re-echoed by Eni-Olorunda (2005) have not been established.

4. Recommendations

There is the need for a policy reform to show commitment to inclusive education in Nigeria. This would involve the abrogation of the concept of “special schools” in the Nigeria’s National Policy on Education to allow for full social integration of the handicapped into the regular schools and society. Equally, an urgent census specifically to detect the disability of every Nigerian is necessary to ensure adequate planning for inclusive education in Nigeria. The literacy programmes of the federal government should be vigorously pursued to ensure the removal of the prejudice and stereotype behaviours of people towards the disabled persons. Provisions in the UBE act for disabled children should include adequate learning and recreational facilities and equipment for the handicapped children.

In order to ensure that no child is left behind in curriculum delivery, there is the need for massive retraining of the teachers of regular schools in inclusive education pedagogies and skills. They are also to be trained in evaluative services for disability (Agunloye, Pollingue, Davou, & Osagie, 2011). As well remarked by Ajuwon (2008), there is the need to conduct comprehensive and methodologically—sound researches into specific needs and interests of each categories of the children with special needs to determine how best to integrate them into the regular class and society. This should equally help in designing cost-effective-universal school buildings that would accommodate everybody (whether disabled or not) with abundant resources to provide education for all in the same setting.

There is the need to create a culturally responsive school environment for the children of the fishermen, the cattle rearers and hunters such that their curriculum is adapted to their traditional job—orientation and modern skills provided for them in the own classroom settings. There is also the need to strengthen the workings of the National Commission for Nomadic Education and that of the Universal Basic Education Commission for effective inclusive education programme. To this end, an increase in budgetary allocation from the current less than 10% to the UNESCO standard of 26% of the total Gross Domestic Product is hereby recommended for education. This increase should be devoted to the provision of adequate learning facilities and infrastructures as well as medical personnel (including nurses and physiotherapist) to support inclusive education in Nigeria. After provision of adequate facilities and infrastructures for inclusive education however, there is the need to put appropriate legal framework to sanction anti-inclusive education behaviour in place. This should include an option of fine or a maximum of 1 year imprisonment for any behaviour that is obstructive to the provision of inclusive education in Nigeria.

5. Conclusion

There is no doubt that inclusive education is the only means of achieving Nigeria’s dream of “a free and democratic society” and “a just and egalitarian society” (Federal Government of Nigeria, 2004: p. 6). It is also a way of combating discrimination and achieving education for all. Even though expensive, inclusive education is the only type of education that can serve “our unity in diversity”. Consequently, Nigeria cannot run away from this responsibility and therefore it should be her target for vision 2020.

References


NVPIE—Nevada Partnership for Inclusive Education (nd). The Promise of Inclusive Education.

http://nvpie.org/inclusive.html


http://www.un.org/disabilities/convention/about.shtml


Psychoeducational Group Curriculum to Address American Indian Marginalization

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Abstract

As a mechanism for collaborative group learning, we have designed a psychoeducational group curriculum that utilizes social justice principles within a liberation framework to address societal marginalization of American Indian communities. The curriculum within this proposed psychoeducational group format helps educators facilitate student exploration of societal portrayals of American Indians with the intent of developing action plans to address social injustice. Students exposed to the curriculum within this psychoeducational group will be equipped with critical thinking skills to transform their emerging social justice awareness and knowledge into social justice skills. Additionally, educators who lead this group can become social justice role models for others by using this experience to address issues of oppression and marginalization that are manifest in other forms in society.

Keywords

Stereotypes, Native-Themed Mascots, Nicknames, and Logos, American Indians, Marginalization Psychoeducational Group Counseling

1. Introduction

Social justice and advocacy issues have emerged as prominent themes within counseling psychology and education within recent times (Aldarondo, 2007). Counselors, psychologists, and educators who operate within social justice paradigms, “strive to intentionally ameliorate social injustices that adversely affect the mental health of larger numbers of persons in oppressed and marginalized groups in contemporary society” (Crethar, Torres Rivera, & Nash, 2008: p. 269). Relative to other racial groups in the United States, American Indian communities...
face serious mental health issues, including disproportionately high rates of suicide, anxiety, depression, and substance abuse (IHS, 2011; Olson & Wahab, 2006). Examining how the societal marginalization of American Indians contributes to these disproportionate mental health outcomes can help better understand and eventually address this nefarious dynamic. And doing so can help both educators and students become advocates of change—responsible citizens who are committed to addressing social injustices, particularly the widespread societal marginalization and appropriation of American Indian culture.

This manuscript presents a curriculum that can be delivered within a psychoeducational group format that educators can use to teach students social justice skills that will not only provide awareness into a social injustice, but it will also increase students’ collaborative engagement skills as they expand their abilities to relate to people different from themselves. We purport that a psychoeducational group format utilizing social justice principles within a liberation framework represents a potentially effective way for students to critically examine the systemic marginalization of American Indians in society. The psychoeducational group format, which is congruent with the educational experiences facilitated by the school setting, allows for both the didactic presentation of content and the collaborative opportunity for group members to process the relationship between members in addition to the content (Stockton, Terry, & Bhusumane, 2007). Although this proposed group has a single-issue focus (i.e., American Indian marginalization), students can use this experience to develop critical thinking skills to better understand instances of societal injustice perpetuated on other groups (e.g., American Muslims, Latino residents of Arizona). Students and group leaders can create opportunities to “notice how different issues intersect in order to help participants understand the many parallels and connections among different forms of oppression” (Bell & Griffin, 2007: p. 68). Thus, participants exposed to the curriculum in this psychoeducational group can use this exploration of American Indian marginalization to further examine aspects of oppression and marginalization that are personally and professionally relevant to them.

2. Social Justice and Liberation Perspective

Despite the emergent emphasis on social justice, varying definitions of this construct exist (Pieterse, Evans, Risner-Butner, Collins, & Mason, 2009). Goodman et al. (2004) offer a broadly accepted definition of social justice by defining it as, “the scholarship and professional action designed to change societal values, structures, policies, and practices, such that disadvantaged or marginalized groups gain increased access to these tools of self-determination” (p. 795). From this perspective, an emphasis on social justice can lead to personal and professional worldviews that align with the belief that educators, “should have a professional bias in favor of significant social change” (Fox, 1993: p. 239). Thus, including multiculturalism and social justice into one’s repertoire becomes more than a professional obligation (APA, 2003, 2005, 2008)—it becomes a desired moral imperative (e.g., Duran, Firehammer, & Gonzalez, 2008; Vera & Speight, 2003).

In order to effectively identify and combat systemic forms of oppression, social justice-oriented educators must develop a sense of critical consciousness (Duran et al., 2008; Freire, 1970; Goodman et al., 2004; Goodman & West-Olatunji, 2009). A social justice orientation within a liberation psychology framework can effectively cultivate the consciousness necessary to understand the experiences of marginalized populations, particularly groups that have faced and continue to face psychological oppression (Duran et al., 2008). Duran (2006) describes the need for this perspective by saying.

Liberation discourse involves taking a crucial eye to the processes of colonization that have had a deep impact on the identity of Original Peoples; as a result, a new narrative of healing will emerge. The mental health profession has been instrumental in fostering the colonial ideation of Native Peoples all over the world... By turning a critical eye on our professional activities of healing, we liberate ourselves as well (p. 1).

A liberation perspective within social justice is particularly useful in conceptualizing the position of American Indian communities within mainstream American society because of the pervasive marginalization of American Indian culture. The mechanisms of this marginalization are embedded within societal institutions, both in American society in general and within our mental health fields. “Because the counseling profession has, in large part, held a privileged position in the United States, many counselors have been unaware of and complacent to many forms of societal injustice that continue to be perpetuated in marginalized communities” (Duran et al., 2008: p. 289). Thus, educators and mental health professionals need to cultivate a sense of critical consciousness within this liberation perspective of social justice in order to effectively advocate for change on behalf of groups who face ongoing marginalization.
3. Mechanisms of American Indian Marginalization

For American Indian communities, this oppressive marginalization process occurs in many forms and contributes to disparate health and mental health outcomes (Alkon & Norgaard, 2009; Indian Health Services [IHS], 2009; Olson & Wahab, 2006). The mechanisms of institutional marginalization of American Indians are present in number of institutions in our society. For example, American history textbooks are filled with widespread misinformation about American Indians (Loewen, 2008). Subsequently, even well-intentioned educators are miseducating and misleading students, who in turn continue to perpetuate stereotypes about American Indians. According to Loewen, “Historically, American Indians have been the most lied-about subset of our population” (2008, p. 93). Subsequently, educational curriculum needs to be adjusted to not only learn about American Indians, but to also unlearn misrepresentations about American Indian culture that permeate current educational curriculum.

One of the most prominent mechanism of perpetuating societal stereotypes and misinformation about American Indians is the oft-overlooked yet omnipresent practice of using American Indian names and imagery in sports (King, Davis-Delano, Staurowsky, & Baca, 2006). Sports-related representations of American Indians (e.g., Redskins, Braves, Indians) can be considered harmful because they: 1) misuse cultural practices and sacred symbols; 2) perpetuate racist stereotypes of American Indians (e.g., the noble savage, the bloodthirsty savage, a historic race that only exists in past-tense status, one singular pan-Indian culture); 3) deny American Indians control over societal definitions of themselves; and 4) create a racially hostile environment for all students (Fenelon, 1999; King, Staurowsky, Baca, Davis, & Pewewardy, 2002; Pewewardy, 1991; Russel, 2003; Staurowsky, 2004; Williams, 2007). The American Counseling Association (ACA) produced a resolution in 2001 acknowledging that sports symbols and mascots that use American Indian imagery create a hostile environment for American Indians. The ACA resolution pledged to disseminate educational materials that highlight negative consequences of this practice, and encouraged members to work toward eliminating stereotypic American Indian images in institutions where they work (ACA, 2001). Over 120 other prominent professional organizations (e.g., American Psychological Association, US Commission on Civil Rights, Society of Indian Psychologists; American Indian Sports Team Mascots [AISTM], 2014) have produced similar resolutions calling for the immediate retirement of these harmful mechanisms of oppression and misinformation about American Indians.

Emerging psychological research has provided empirical data that supports these resolutions. Fryberg, Markus, Oyserman, & Stone (2008) reported that, when exposed to Native-themed mascots, American Indian students reported significantly higher levels of depressed state self-esteem, lower levels of community worth, and fewer achievement related possible selves. The authors suggested that these stereotypic images remind American Indians of the narrow view society has of them, which threatens their psychological functioning and limits the possibilities they see for themselves (Fryberg et al., 2008). In another study, Steinfeldt & Wong (2010) found that awareness of the offensiveness of Native-themed mascots, nicknames, and logos was significantly inversely related to color-blind racial attitudes (CoBRAs; Neville, Lilly, Duran, Lee, & Browne, 2000). That is, the more awareness that a person has concerning the negative implications surrounding Native-themed mascots, nicknames, and logos, the greater awareness they have about racism in society (i.e., lower colorblind racial attitudes). A lack of awareness of racism in society can contribute to the belief that Native-themed mascots, nicknames, and logos honor American Indians (Steinfeldt et al., 2010). This belief can serve as an ego defense to help preserve a sense of racial egalitarianism, which simultaneously conceals the genocidal acts of European Americans toward American Indian communities (Grounds, 2001). Rather than address the occurrence of this genocidal past (e.g., Loewen, 2008), this ego defense creates the (mis)perception of some sort of contemporary unity between American Indians and members of mainstream society in the practice of using American Indian culture and imagery in sport, and color-blind racial attitudes may serve as the glue that binds this false union (Steinfeldt & Wong, 2010).

Kim-Prieto, Goldstein, Okazaki, & Kirschner (2010) examined Native-themed sports logos (e.g. those depicting American Indians as bloodthirsty savage warriors) in order to determine if these images increased stereotyping of another racial group (e.g., Asian Americans as socially inept). Results confirmed that the stereotypic representations provided by Native-themed mascots, nicknames, and logos increased the likelihood that people would endorse stereotypes of other groups, even when the stereotypes are different. Subsequently, the use of these race-based sports logos facilitates the process of stereotyping, contributing to a racially hostile environment (Kim-Prieto et al., 2010). In another study found in the psychological literature, Steinfeldt et al. (2010)
analyzed 1700 newspaper online forums within a community with a Native-themed sports nickname and logo (i.e., Fighting Sioux). The results of their analysis indicated that a critical mass of online forum comments demonstrated ignorance about American Indian culture and disdain toward American Indians by perpetuating stereotypes, providing misinformation, and expressing overtly racist attitudes toward American Indians. Thus, the presence of a Native-themed nickname and logo facilitates an environment which can threaten the psychological functioning of American Indians by providing misinformation, by activating stereotypic representations, and by facilitating the expression of explicitly racist attitudes toward American Indians (Steinfeldt et al., 2010).

The empirical results of these scientific studies—when combined with the resolutions of these numerous prominent professional organizations (e.g., AISTM, 2014)—indicate that the misappropriation of American Indian culture facilitated by these stereotypic portrayals can contribute to the negative psychological functioning of American Indians. However, these stereotypic representations of American Indians are widely disseminated through numerous institutions in society (e.g., schools, media, athletic events), further compounding the difficulty in effectively addressing this issue. The omnipresence of these (and other) stereotypic images of American Indians in society (Merskin, 2001) creates the impression that the practice of appropriating American Indian imagery and culture for use in sporting events and commercial endeavors must be acceptable (King et al., 2006). This institutional mechanism creates a hegemonic effect that largely disallows a dialogue about the possibility that state-sanctioned practices (e.g., Columbus Day celebrations, public school sport teams with the nickname of Indians) could be considered racist, offensive, or harmful. Because the collaborative group learning process can be a transformative experience, rather than a perpetuation of oppressive societal dynamics, this curriculum can potentially effective in directly addressing this difficult topic. According to MacNair-Semands (2007), “social justice is a dynamic issue which inevitably surfaces whenever people from diverse backgrounds meet in groups” (p. 62). Thus, educators have the opportunity to use the collaborative group process to facilitate healing experiences, rather than be complicit in allowing potentially damaging interactions to occur that fuel the perpetuation of oppression (MacNair-Semands, 2007).

4. Psycheducational Group Curriculum to Address American Indian Marginalization

While this manuscript has been written for use with middle-school-aged children, the principles of this group format can be adapted more generally to other marginalized populations (e.g., LGBT, religious minorities, racial minorities) and used with various age groups. The skills underlying social justice advocacy need to be socially constructed in a developmental manner, and the group experience may represent the first time adolescents are able to collaboratively discuss and process social justice issues with their classmates. This powerful process can lead to significant attitudinal change. Thus, adolescents who become more aware of their own values during a group experience may feel more empowered to address social justice issues such as prejudice, discrimination, and oppression (Portman & Portman, 2002). The overarching goal of this group is to provide a forum for students to begin their journey of unlearning racism and equiping themselves with the tools to be agents of change. The proposed psychoeducational group is intended for all students, but it may be of greatest benefit to students from mainstream American culture, including but not limited to White American students. Many social injustices are unintentionally perpetuated by otherwise well-intentioned individuals in society (Bell & Griffin, 2007). Consciousness raising “involves a ‘process of transformative learning’ that awakens personal awareness, leads to critical self-reflection and analysis, discovers group commonality among a ‘class’ of situations” (Adams, 2007: p. 27). By attempting to raise consciousness and change attitudes (particularly among members of the mainstream culture), this proposed group has the potential to provide students with “knowledge [that] may empower them to recognize, identify, and positively change injustices as they begin to be advocates for social change in the 21st century” (Portman & Portman, 2002: p. 18).

Central to the success of this proposed psychoeducational group is the role of the leader or leaders. “Group facilitators who are unaware of their social privileges are particularly vulnerable to perpetuating the oppression of members from marginalized groups” (Smith & Shin, 2008: p. 359). Thus, as role models to students, multi-culturally competent educators need to possess knowledge of the life experiences, cultural heritage, and historical background of people who are culturally different (AMCD, 2009), particularly those who face ongoing marginalization in our society. Leaders interested in implementing the curriculum of this proposed psychoeducational group format should first engage in critical self-inquiry about their knowledge, awareness, and skills as it
relates to issues salient to American Indian culture. For example, many tribes have a cultural heritage preservation component (informal or formal), so educators can take this opportunity to reach out to members of the American Indian community to educate themselves.

In addition to the necessary multicultural competence of the potential leaders, it is important to acknowledge the process of receiving support from a school’s administration and/or surrounding community for social justice-themed groups. Introducing social injustice to students may be perceived as controversial, and “controversy is not something schools handle well” (Westheimer & Kahne, 1998: p. 19). Thus, it is important to build relationships and coalitions with administrators, teachers, and community members. Receiving institutional support for implementing a social justice-themed group may require educators to utilize this relational capital in order to engage in sustained efforts to educate the school community on the value of the topic at hand. However, the topic of American Indian marginalization is gaining increased attention in society, particularly among young students within classroom settings. Emerging stories, such as one in which fourth-grade students dressed up as characters from the 15th Century, and conducted a mock trial of Christopher Columbus, are becoming more commonplace. In this particular instance, the jury of students found Columbus guilty of thievery and of misrepresenting the Spanish crown, and they sentenced him to life in prison (Associated Press, 2009). Along these lines, one idea to increase the school community’s amenability to our proposed topic may be to plan this group to begin in October (i.e., around Columbus Day) and continue throughout the celebration of National American Indian and Alaska Native Heritage month in November. Additionally, this group could be implemented in coordination with a social studies curriculum unit on social justice. Although educators, particularly counselors and psychologists, have “a moral and ethical responsibility to advocate for students and serve as agents for social and political change” (Ratts, DeKruyf, & Chen-Hayes, 2007: p. 90), these educators need to be conscientious of the social climate in the context in which they operate.

The proposed psychoeducational group format involves four phases and represents a synthesis of aspects of the Empowering Students for Social Justice Model (Portman & Portman, 2002) within the framework of the Liberation Model (Steele, 2008). Both of these models have been introduced in the counseling literature, and both illuminate social justice advocacy principles that can be facilitated by the group process. Table 1 illustrates how our proposed psychoeducational group can be structured. Each of the four phases has two sessions, with specific goals and content in each phase. Group dynamics relevant to each phase are also addressed, and examples of activities that can facilitate the process will be explained in detail in the sections that follow.

4.1. Phase I: Investigation and Examination of Social Justice Principles

In the first phase of this group, Investigation and examination of social justice principles, leaders should focus on educating students about setting norms to create a safe environment to start discussing difficult social justice issues, as well as conveying information about social justice principles (whether introduced for the first time or connected to a social studies curriculum on social justice). The two sessions in this phase, entitled Beginnings and Knowledge, serve to build a foundation and create a framework for students to begin to make sense of how they are internalizing societal representations of American Indians. In these sessions, group leaders can utilize Adams’ (2007) framework for implementing social justice principles in the group process, which entails: 1) balancing the emotional and cognitive components of the learning process; 2) acknowledging and supporting the personal (i.e., individual student’s experience) while illuminating the systemic (e.g., interactions among social groups); 3) attending to social relations within the group; 4) utilizing reflection and experience as tools for student-centered learning; and 5) valuing awareness, personal growth, and change as outcomes of the learning process.

Group leaders in this phase need to establish mutually agreed upon group norms for respectful interactions, encourage low-risk self-disclosure, and continually monitor and acknowledge affective responses as students begin their journey toward developing critical consciousness (Bell & Griffin, 2007). To achieve optimal functioning throughout these first two sessions (and beyond), the group needs to create a safe environment where members are encouraged to share emerging feelings of defensiveness, dissonance, and discomfort that may accompany an exploration of oppression and marginalization in society (Griffin & Ouellett, 2007).

4.2. Phase II: Investigation, Examination, and Deconstruction of Societal Narratives about American Indians

In the second stage, Investigation, examination, and deconstruction of societal narratives about American In
the following vignette that is taken from a training intervention (Steinfeldt & Steinfeldt, 2011: p. 3) can be read:

A gut-level understanding of this issue, based on the omnipresence and hegemonic nature of this practice. Thus, students can observe contemporary media (i.e., internet, newspapers, television) to examine language used to describe American Indians. Newspaper headlines such as “Braves scalp D-backs” (Reuters, 2007) and “Lady Indians on the warpath” (Mitchell, 2009) utilize race-specific language that allows pejorative stereotypes of American Indians to permeate and negatively distort public perceptions of contemporary American Indian culture. Students can go shopping and observe products that appropriate American Indian culture (e.g., Land O’ Lakes Butter, Jeep Cherokee, Big Chief Sugar; see Merskin, 2001). Additionally, students can observe contemporary media (i.e., internet, newspapers, television) to examine language used to describe American Indians. Newspaper headlines such as “Braves scalp D-backs” (Reuters, 2007) and “Lady Indians on the warpath” (Mitchell, 2009) utilize race-specific language that allows pejorative stereotypes of American Indians (i.e., bloodthirsty savage) to permeate and negatively distort public perceptions of contemporary American Indian culture.

To facilitate the perspective-taking process within this phase of the group, it is important for students to have a gut-level understanding of this issue, based on the omnipresence and hegemonic nature of this practice. Thus, the following vignette that is taken from a training intervention (Steinfeldt & Steinfeldt, 2011: p. 3) can be read:

Table 1. Outline of psychoeducational group format to address marginalization of American Indians.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Group Sessions</th>
<th>Purpose (Goals)</th>
<th>Content (Activities)</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Investigation and Examination of Social Justice Principles</td>
<td>1. Beginnings 2. Knowledge</td>
<td>Create safe environment for students to share and explore social justice issues; provide foundation of knowledge on social justice</td>
<td>Familiarize members with group process; establish curative factors; connect to social justice principles in curriculum unit</td>
<td>Classroom dialogue; ice breaking; Initial stage group work</td>
</tr>
<tr>
<td>II. Investigation, Examination, and Deconstruction of Societal Narratives about American Indians</td>
<td>3. Learning and Unlearning History 4. Facilitating Perspectives</td>
<td>Investigate and critique dominant US cultural, educational, and political narratives regarding American Indians</td>
<td>Critically examine and discuss history textbooks and sports media (newspapers, television, online columns, blogs); create scenarios to facilitate perspectives</td>
<td>Classroom dialogue; discourse analysis; Transition stage group work</td>
</tr>
<tr>
<td>III. Synthesis and Application of Findings</td>
<td>5. Synthesis and Planning 6. Presenting Projects</td>
<td>Define and study a problem based on themes discovered in Phase I and II; create presentations to share with fellow group members for feedback and support</td>
<td>Plan for social justice project; implement findings; create own unique format to present ideas to fellow students</td>
<td>Oral presentation; technology use; Working stage group work</td>
</tr>
<tr>
<td>IV. Future Applications of Social Justice Skills</td>
<td>7. Processing Projective Applications of Project 8. Termination</td>
<td>Develop action plan to address issues; facilitate connection of learning from group to external world; provide closure to group members</td>
<td>Provide feedback and support to fellow group members; discuss ways to implement social justice principles in future endeavors; terminate group process</td>
<td>Support building; networking; Termination stage group work</td>
</tr>
</tbody>
</table>

students are directed to pay closer attention to portrayals of American Indians in society. Doing so can help students become critical consumers of their own experiences, while providing ample opportunities for students to contribute to group discussions as group work in this transition stage progresses. Group leaders in this phase need to attend to the affective climate of the group as students learn to work through feelings of guilt and frustration—which can translate into dissonance, conflict and confrontation—as they attempt to make sense of their societal observations. Leaders can facilitate collaborative engagement and group development by validating personal risk taking, encouraging full discussion, and allowing contradictions and tensions to emerge (Bell & Griffin, 2007). While still observing the norms of respectful interactions set in the initial phase (and modeled by leaders throughout), students can use the group to share and process the reactions they have to their observations of societal portrayals of American Indians. Doing so can help facilitate perspectives that emerge from viewing the world with a more critical eye.

The overarching goal of the two sessions (i.e., Learning and Unlearning History, Facilitating Perspectives) of this second phase is to investigate and critique dominant societal narratives regarding American Indians. Students can be directed to examine institutions in contemporary society (e.g., media, schools, religion, commerce, government) for examples that perpetuate stereotypic portrayals of American Indians. For example, students can look in their history textbooks to examine the ways that American Indians are presented. According to Loewen (2008), American history textbooks utilize the word savages to describe American Indians, while using the word civilized almost exclusively to describe White people, even though anthropological research has demonstrated that American Indians had established a civilized way of life (e.g., agriculture, government, religion) before encounters with explorers (Loewen, 2008). Students can go shopping and observe products that appropriate American Indian culture (e.g., Land O’ Lakes Butter, Jeep Cherokee, Big Chief Sugar; see Merskin, 2001). Additionally, students can observe contemporary media (i.e., internet, newspapers, television) to examine language used to describe American Indians. Newspaper headlines such as “Braves scalp D-backs” (Reuters, 2007) and “Lady Indians on the warpath” (Mitchell, 2009) utilize race-specific language that allows pejorative stereotypes of American Indians (i.e., bloodthirsty savage) to permeate and negatively distort public perceptions of contemporary American Indian culture.

To facilitate the perspective-taking process within this phase of the group, it is important for students to have a gut-level understanding of this issue, based on the omnipresence and hegemonic nature of this practice. Thus, the following vignette that is taken from a training intervention (Steinfeldt & Steinfeldt, 2011: p. 3) can be read:

Table 1. Outline of psychoeducational group format to address marginalization of American Indians.
to set the stage for the students’ exploration in the second phase:

The crowd roars as the mascot enters the gym. The student section of the East High School Catholics erupts with the anticipated entrance of Father Guido. He is dressed in flowing robes, with golf-ball sized rosary beads flopping around his neck, and a tall cloth hat on his head with the words “CATHOLICS RULE” written on it. He begins his much anticipated halftime routine by tossing fake Eucharistic hosts into the crowd, much to the delight of the fans who gobble them up or toss them back and forth to each other. Throughout the routine, his genuflections are accompanied by his pantomimed crucifix consecrations of the crowd. After his flamboyant flipping of holy water into the crowd, Father Guido goes for the money shot—he grabs the incense urn and completes his frenzied blessing of the crowd before suddenly becoming stoic, dropping to a knee in prayer, then rising to scream in unison with the crowd, “Pope Benedict, lead us to victory!” The fans feel honored to receive Father Guido’s blessing, in hopes that it will inspire the crowd to cheer diligently for the Catholics’ second half surge to victory.

This example intends to provide students with an understanding about how they might feel if someone took something sacred to them (i.e., Christian religious practices) and used it in such a manner—then told the students that they were honoring them by doing so. This example can facilitate a group discussion on how using American Indians as sports mascots, nicknames, or logos misuses sacred cultural symbols and practices. The continuing use of eagle feathers, dancing, and chanting during mascot performances violates the sanctity of these aspects of American Indian culture while simultaneously continuing to contribute to mainstream America’s ignorance of American culture (Staurowsky, 1999). In being subjected to the perspective of American Indians on this issue, students can critically evaluate the nature and function of societal portrayals of American Indians. For other perspective-facilitating examples, see Steinfeldt & Steinfeldt (2011). These examples highlight the marginalization process to which American Indians are uniquely subjected, but students and leaders can use emerging critical consciousness developed in this phase to make connections to other forms of societal oppression.

4.3. Phase III: Synthesis and Application of Findings

In the third phase, Synthesis and application of findings, students can identify and engage in a social justice project based on their experiences and findings in the first two phases of this group. The first session of this phase, Synthesis and Planning, allows each student to choose a social justice activity that the (s) he can actually carry out. If social justice skills are to be fully developed, students need to have advocacy experiences that transform abstract concepts into concrete form (Westheimer & Kahne, 1998). In this phase, students can use the collaborative learning group process to explore possible advocacy ideas, and they will be encouraged to engage in a project based on whatever level of comfort they possess. For example, a student could join an activist discussion group (e.g., “Say NO to Mascots” on http://www.yahoo.com that disseminates information daily on current events related to Native-themed mascots, nicknames, and logos. Tapping into the internet skills of many of today’s adolescents, a student could create a YouTube video that expresses a perspective highlighting the experience of American Indians subjected to societal marginalization (e.g., a parody on commercial products appropriating American Indian culture). Students could write a letter to FedEx, the naming-rights sponsor of the Washington Redskins football stadium, indicating consumer dissatisfaction and implications of their partnership with an organization with a racialized nickname and logo. There are many additional options students can explore as they prepare to be exposed to the action stage of social justice. Students can use the group to generate ideas and support for their activity as they continue to cultivate their emerging critical consciousness.

The second session of this phase, Presenting Projects, involves students describing the social justice activity they have chosen to engage in. Having completed their chosen activity, students will present a description of their activity so group members can share their reactions to these social justice learning experiences. The group process can allow members to provide and receive feedback that can effectively validate their fledgling social justice experiences. Although rewarding, social justice advocacy can be a draining, exhausting, and isolating experience (Steinfeldt et al., 2012). Thus, a cohesive working group can provide members with emotional support and validation, and the group experience can equip members with skills to develop support systems to use in future social justice endeavors.

4.4. Phase IV: Future Applications of Social Justice Skills

In the final phase, Future applications of social justice skills, students continue to process their reactions to their
own and fellow group members’ social justice projects, and carry out the process of termination from the group. The goal of the penultimate session, *Processing Projective Applications of Project*, is to help students make a connection between what they have experienced in the group and what they can do in the future. In this session, group leaders can assist members in conceptualizing how they will apply the awareness, knowledge, and skills from this group to their life outside of group. Members can use this session to discuss how their experience with exploring American Indian marginalization relates to other examples of oppression and marginalization that they have experienced or envision addressing in the future. By participating in this proposed group, students can build networks and coalitions, and share ways that they can support each other in becoming agents of change.

In the final session, *Termination*, students will continue to celebrate what they have learned and continue to explore how they are going to use this knowledge in the future. Students are encouraged to explicitly process the termination of the group. Group leaders in this phase encourage members to articulate feelings they may have about the termination process, such as feelings of loss, shared appreciation, and unfinished business they may have with the group (Stockton, Terry, & Bhusumane, 2007). Given the transformative potential of this type of social justice group, it is important for leaders to validate the growth and development they notice among individual members and within the group as a whole. Students in this final phase can leave the group feeling good about themselves as contributing members of a participatory democracy (Westheimer & Kahne, 1998) who are beginning to realize how they can turn social justice awareness and knowledge into social justice skills.

### 5. Conclusion

With social justice’s emerging prominence as the “fifth force” (e.g., Ratts et al., 2004) in counseling and psychology, educators are called upon to provide opportunities to examine societal injustices so that students can become aware of social justice as a basic value (Portman & Portman, 2002). “Becoming aware of the various forms of cultural oppression and social injustices that adversely affect the mental health of clients from devalued groups in US society as well as the psychological development of many Western-trained mental health practitioners is an essential component of the process of liberation psychology” (Duran et al., 2008: p. 289). This proposes psychoeducational group curriculum addresses the societal marginalization of American Indians as an example of how to apply social justice principles, specifically to issues related to American Indians but also broadly to other marginalized groups in society. In addition to facilitating attitudinal change, the group experience can help students become empowered to address oppression, injustice, and marginalization across a variety of domains. In addition to cultivating students’ emerging social justice skills, this group format has the potential to help current and future professionals and other educators (e.g., teachers, administrators, coaches) familiarize themselves with issues salient to American Indian communities. “An increase in accurate information about Native Americans is viewed as necessary for the achievement of other goals such as poverty reduction, educational advancements, and securing treaty rights” (King et al., 2002: p. 392). By using collaborative engagement within the group setting, educators can address social justice issues that can empower students, teachers, administrators, and others who are interested in eliminating injustices in society.

### References


Analysis of the Relationship between a Learning Group and a Teacher at a Sciences Workshop of the Elementary School

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Abstract

This paper aims to investigate the dynamics of a learning group in a science workshop. The group selected for the research consisted of four students of the last years of elementary school I, 9 to 10 years old children. The data were collected by the teacher, upon recording the video lessons, at a public school in the municipality of Londrina-Paraná/Brazil. The theoretical basis used for the analysis and interpretation of the data is psychotherapy guidance, particularly the Theory of the Link Pichon-Rivière. Among the main findings, it is highlighted the link set between the group and the teacher, which contributed to a more stable organization among the members, including with the acceptance of a student who felt excluded. The contributions refer to the discussion of some relevant aspects of collaborative learning in order to promote and support the educational process through learning group in the classroom.

Keywords
Psychoanalysis and Education, Science Teaching, Learning Group

1. Introduction

The learning in group has currently presented itself as a prominent issue in the globalized world, considering that one of the areas of its application requires a collaborative work; an action involving several apprentices subjects, who are also issuers of knowledge.

Based on Vygotsky (1989), the group work may also be considered as a mechanism for measuring the learning of concepts, whose dynamics requires an “internal reconstruction of an external operation”, arising from the

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social interactions. So that, Oliveira (1998) believes that culture is a “stage of negotiations” in which subjects share ideas and knowledge and reconstruct meanings. In our view of learning, concomitant with the theoretical thinkers submitted, the internalization process of knowledge takes into account the intersubjectivity, conveyed in the group processes, which is the representation of the psychic functioning of the group amid the intrasubjective nuances. Thus, there is a need of thinking about the group as potential mechanism of mediatiation of the collaborative learning process, once that through it, it is possible to socialize knowledge, interact and rebuild more elaborated knowledge.

Nowadays, researchers in the Science Teaching field, among which we highlight: Brown et al., 1989; Wheatley, 1991; Kirschner, 1992; Gil-Pérez, 1993; Duschl, 1995; Laborde, 1996; Rubtsov, the pud Laburú 1996a, 2005; Garnier, 1996; Barolli, 1998; Trumper, 2003; Barros & Villani, 2004; Barros et al., 2005; Rocha, 2005; have emphasized the importance of the group learning as a privileged moment for the development and practice of intellectual abilities, Likewise to promote the concept and deepen the students’ understanding, enhancing the “insights” and solutions that would not be possible during individual learning, allowing students to take on different roles, confronting their prior knowledge and the inadequacy of their thinking strategies; so that, helping them to develop abilities necessary for the collaborative work, which is the way most people learn and work.

For these researchers, group work arises as a fundamental element of the methodologies based on teaching models that intend to bring close the learning situations of the activities of scientists. These methodologies aim to explore the dimensions of team work, organizing the teams and facilitating the interaction and communication between them. Opportunities are created in the group for discussions and argumentation in addition to experiencing the conflict between prior and new knowledge, and to foster an awareness of the inadequacy of reasoning strategies. Small groups provide opportunities for students to explain and justify their points of view, a process that stimulates the learning, because the ability of reasoning is one of the most important achievements of science education. In the process of telling others how to think about a problem, the students develop and refine their thoughts, going deeper on their understanding.

Relying on the cooperation, the apprentices go from the organization of their common actions for the solution of practical problems. Therefore, the collective forms of organization of the learning activity contribute to the acquisition of the theoretical content of the physical concepts (Laburú, 2005; Rubtsov, 1996a). Thus, the cognitive development cannot be conceived outside the social field in which the own actions mingle with social interactions, in a reciprocal and interdependent game (Garnier, 1996; Rubtsov, 1996).

The aspects highlighted about the team work show its importance in the teaching and learning process, making it necessary to promote a closer examination of the researches on the operating dynamics of work. Our work aims to contribute to it, as it attempts to uncover relationships of different kinds that are established in groups in teaching situations and understand the way they are structured to perform its tasks, likewise. We intend, so that, providing support for the teacher on planning the intervention in order to promote the operability1 of the group.

Under this perspective, the scope of this work is to investigate the working dynamics of a learning group in a science class of the Elementary Education I. It intends, mainly, to analyze the link between teacher and group established during the performance of the proposed educational activity. It also tries to answer the following question: How do the group and the teacher invest efforts in cooperation, overcoming the existing impasses in the group dynamics? For that, we tried to focus the difficulties that diverted students from the collective work and the challenges that drove them to the improvement as a learning group. It investigated the roles that they assumed in the group, the tasks assigned to each member and the relationship they established with the teacher.

It focuses on the group as a place of production of own subjectivities, and has the objective of understanding what may contribute to the proposition of interventions, by the teacher, toward the improvement on the levels of socialization and enhancement of the capacities of its students to work guided by a task.

2. Research Methodology

This research herein is qualitative (Bogdan & Biklen, 1994) and it is a case study on the dynamics of a learning group in science at the Elementary Education I.

1According to Pichon-Rivière: a group that works in accordance with na operative dynamics is the one that has common objectives and goals in which all the members work as a group centered around the task. The activity is focused on the mobilization of the stereotyped structures, learning and communication difficulties, due to the accumulation of anxiety that is awakened by any change. One of the basic rules for operative groups may be translated as follow: “the greatest heterogeneity of the members of the group and the greater homogeneity of the task correspond to higher productivity”.

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This study has been carried out at a Municipal School of Londrina, in the state of Paraná, with students who participated of a Science Workshop, which is part of the Project Pedagogical Workshops. The science workshop has been proposed to 12-year-old students at the last two years of Elementary School I. The dynamics of work consisted on the formation of three fixed groups of four students. It has been taken as object of study just a group formed spontaneously by two students of the fourth grade (CA, JE) and two from fifth grade (PE and JA), aged 9 - 10 years old.

The proposed activities consisted in making the students solve, actively, a problem of physical knowledge, that means, acting on an object and discussing the causes of the relationships which they established between their actions and the corresponding effects. This methodology tried to emphasize the initiative of the students and create opportunities for students to draw up arguments in order to defend their ideas and learn to respect their classmates’ ideas (Carvalho et al., 1998); simultaneously, it intended to offer the possibility of forming working groups promoting the learning.

All long the data taking we used video recordings; classes were transcribed immediately after the meeting and accompanied by a report of an investigation carried out by the teacher, who was the researcher herself.

The course offered by the science workshop has happened in four months with a weekly meeting of 1 h 30 min long, totaling 15 meetings about the physical knowledge. The classes took place in the Science Lab, a space where regular classes were held.

3. Settings of an Operative Group and the Theory of the Link

It has been used a theoretical framework based on psychoanalitical orientation in fundamented on operative groups, specially in the Theory of the Link Pichon-Rivièr for an analytical reading of the research.

Pichon- Rivièr (1995) features the group, and in this operating group case, as a restricted group of people, who are linked by constants of space and time and articulated by their mutual internal representation, it is proposed, in explicit or implicit form, to a task that is its purpose. Within this process, the person is seen as resulting dynamic in the interplay set between the subject and the objects, and their dialectical interaction through a dynamic structure called link. The link is defined as a complex structure that includes a subject, an object, and their mutual interrelationship with communication and learning processes.

The author sees the link as a dynamic structure in continuous movement, which encompasses both the subject and the object. The link is expressed in two psychological fields: internal and external. It is the internal that conditions much of the external and visible aspects of the conduct of the person. The learning process of external reality is determined by aspects or characteristics obtained from the internal reality, which occurs between the person and her internal objects.

It is relevant considering that the link is set by its totality of the person, which Pichon- Rivièr interprets as a gestalt, in a constant process of evolution.

Another key-concept of the work of Pichon-Rivièr is the role employed by the author in the theory of the link. According to him, our relationships with others are based on assumption and assignment of roles, which are taken consciously or unconsciously in a given social context. Regarding the concepts of role and link, Pichon-Rivièr argues that these concepts are intertwined and, therefore a therapy focused on that should address the structure of the link, as well as the several roles, which are attributed by therapist and patient.

Hence, the role includes the status of the link. It is characterized for being transitional, with a determined function, which may appear in a given situation and in every person in a particular way. In other words, the way we handle certain situations will influence on our conduct, and it is what Pichon-Rivièr assigned as the designation of roles. Among the main types of roles in a group it is highlighted: the spokesperson, the scapegoat, the saboteur and the leader.

The spokesperson is the person who complains, for example, about the aspects related to difficulties in performing the task. These aspects are expressed because the person realizes and gets bothered about them. As it is disturbing, the person perceives them as being hers, and does not realize what is feeling. The person mentions them because in that moment she is the spokesman of the group difficulties, however, she expresses it as being only her difficulties. If the group faces the spoken contents and starts confronting and solving the group difficulties, the spokesperson becomes the leader of the task, the content that has been brought by her is heard by the...
group and from that comes up a solution to the dilemmas created, in order to avoid a global view about what prevents people of acting together. The group begins to behave in an intense cooperativity.

Although, if the group does not want to hear the spokesman, making him believe that the difficulty is of his own, the group begins to antagonize him in subtle or aggressive way and gradually, making him into a scapegoat of the denied difficulty. They claim that the difficulty is his, expressing that his insistence disturbs the work of the group. The scapegoat expresses the content that is denied by the group and directed toward a person. The content brought by the spokesman is sharply denied and the group says it has nothing to do with him, but with the person whom he spoke to. They say that the content spoken is the opinion of the spokesperson and not of the whole group.

The person who tries to divert the group from the task and the common objectives to be achieved by everybody takes the role of spoiler, creating other needs as being the most important for the group at that moment.

The role of leader can excel in four characteristic types: autocratic, laissez-faire, demagogic and democratic or progressive. On the study of roles and links, different leadership styles stand out and may present more charismatic features and even some others more authoritarian, varying according to the introjected object, in other words, the type of content deposited in the person who takes this role or not, depending on links set in a given situation. The role is usually developed from a process of identification, which always has a representational equivalent for leadership or for another type of role in assumption and assignment by the group. For example, the group demonstrates dependence on the role of leader to fight, flee or take conciliatory positions. Obviously, the leader gathers personal characteristics to manifest this behavior, however, the group itself takes the role of dependent. Both positions must be considered in the analysis of the process and as not the cause one another. Leadership, by itself, is considered a complex phenomenon that deserves study apart to be better understood.

To Pichon-Rivière (1994) there is an intimate relationship between the concept of roles and concepts of depositor, depositary and deposited. The depositor is the person or group that performs the projection. The depositary is the external object on which the projection is located. And deposited is the transferred content. This meaning the link, allows both the construction of images that people internalize as experiences, as well as it is made in gathering commitments to perform certain task requested. The processes of projection and introjection of deposited contents can feature links between the depositor and the depositary of these contents. The contents may be, even builders of crystallized roles or not, it depends on what is attributed to the person or to the group and how they respond to the action of deposit, taking or denying it.

In this approach, Pichon-Rivière says that, from a situation characterized by stereotyping of roles and through the task, it presents another situation with functional leadership, which is expressed by the alternation of roles. To the extent that people acquire greater elasticity, being able to take the role of interpreters, so that, realizing themselves, then, a self-control, a self-feeding and a self-conduction of the group.

Figure 1 shows the theoretical relationship between the links and roles on the theory of Pichon-Rivière (Rocha, 2005).

4. The Dynamics of the Group Investigated

In order to improve the analysis of data under the theory used, it has been opted by making a cutout of the sciences workshops project, reporting one of the educational activities proposed. So that, the activity of the sixth meeting, which aimed to discuss the existence of air and space used by it. The challenge consisted in putting a sheet of paper into a glass and sink it in a container with water, without wetting the paper (Carvalho et al., 1998).

In previous lessons, one of the group members (JE) kept, with higher frequency, a less privileged role in the group, he was the last to make attempts to solve the challenge. He did not interact with the other members and showed more difficulties to understand the ways of solving the challenges posed by the teacher to the group. Colleagues would ignored him and he realized that. At the beginning of the sixth meeting, the group dynamic seemed similar to the previous meetings; JA led in partnership with CA, i.e., he set the rules for organizing at

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1According to the psychoanalysis kleinian, the identification consists in a defense mechanism. It is a relation in which the object, such as it is given in to an object that is the extend of the ego. In this meaning, it consists of a narcissist relation of the object, in other words, the ego is connected to a part that seems to be out, in the “object”, but, in fact, unconsciously, is a part of himself (Simon, 1996).

2As the identification, the projection is with the introjection one of the defensive conduct. While the projection is the fact of attribute to external objects, characteristics, intentions or motivations that the subject or group do not know in itself; the introjection is the incorporation or assimilation, by the subject or group of characteristics or qualities that come from an external object, from the external world (Bregger, 1989a).
tempts and called the other members (EP and JE) to work. Meanwhile, JE always used to be the last in attempting. In the episodes presented below, it is highlighted the very moment that the group began to work more cooperatively, supporting the difficulties of the group its members and sharing common goals, by overcoming the impasse on the exclusion of the student JE from the collective work and his respective progress in the construction of meaning in the learning process of sciences.

4.1. The Initial Invitation

Initially the teacher invited the group to work cooperatively in solving the activity, explaining his desire to accept contributions from the ones who were being excluded.

Prof.: “In our lesson today we will try to solve a challenge. We have a pot with water and you will receive this plastic glass. You can pick it up and note the type of glass. The challenge is: how do we do to put this paper into the glass and sink the glass in a basin with water, without wetting the paper? You can do it the way they wish, talk among yourselves, discuss the rules and think about some ways to solve this challenge. But it is not only you or him, the whole group should discuss and explain this”.

In the first meeting, the teacher envisioned to arise the interest and participation of students, although she did not expressed her purposes for the group. At this meeting, on the contrary, the teacher reported to the group how her group collaboration favored the quality of work achieved.

4.2. Reporting an Implicit Pact

Since the beginning of the course, the students JA, CA and PE constituted a sub-group; in turn, JE was excluded from the discussion. JA became the first leader of the group able to establish an identification among its members in order to be a good group for the teacher. At the same time, there was also the establishment of an implicit pact of the group in not letting the individual aggressiveness disturb the teamwork. However, in this sixth meeting the student JE reported this pact with the explicit exclusion of the impasse.

JA: “Let’s screw the paper! Do you agree JE? Do you, PE? CA do you agree?”


JE: “Yeah, I’m actually the last!”
Realizing the placement of JE and his dissatisfaction regarding the other members of the group, the teacher approached and asked for JE.

Prof: “Have you had any problem today?”
JE: “No!”
Prof.: “Is it about your group?”
JE: “Yes.”
Prof.: “What is that?”
JA: “But it was with us? With all of us?”
JE confirmed it was about the group nodding.
Prof.: “So apologize to him!”
JA: “But what?”

After the teacher’s intervention, the students CA and JA talked to JE while PE resisted to the group decision, with suspicious eyes, not expressed verbally, however, expressed in gestures not agreeing with the care offered by JE and the others likewise.

CA: “What is that?”
JA: “What happened?”
JE: “Since the beginning!”
Prof.: “What has happened?”
JE: “See, they are already saying that they do not want me to go in their group.”
JA: “Today, I have not spoken, teacher. It has been a while, yet!”
JE: “The day I joined the group he said he did not want me to join in their group.”
JA: “No teacher, but you know why I said that? It’s because he would argue with everyone, we kept telling him to stop, but he did not. Then all of a sudden I got tired, teacher, and said, but it has been a long time. (...) I just got angry when he was disturbing the group, in fact, everyone ... hence I said.”

4.3. The Construction of a New Contract

After JE showing his dissatisfaction about the group, with the help of the teacher, the problem was faced by everybody and the group overcame it, moving on to a joint production. Students reflected on the discontent of the subgroup and showed the discomfort with the attitudes of JE and, that member has also shown to have re-worked his actions, as in face of new dynamics during the resolution of the task presented collaborative attitudes. The exclusion of JE was overcome and students committed themselves to the construction of new rules, imposed conditions and commitments for changes in an attempt to support to the student JE, according to the following statements:

EP: “If he does not do anymore, not keep arguing, I ... okay.”
JA: “That day we talked to him, he improved. Although, he continued doing the same thing again, and it has been so long since I said that, and why is he is like that today?”
CA: “But was it that day when we decided who would start solving the challenge?”

This student remembered the beginning of the activity when they decided on the order to conduct the trials. JE remained silent for a moment with his head bowed as they talked and then when CA reinforced PE speech, he raised his eyes intently watching the proposal that seemed to be shared by JA and PE.

CA: “If he does the activity and stop complaining... We could let him try once more.”

The student was referring to the fact of giving to JE once more the opportunity of attempting to solve the challenge. And turning to JE she asked:

CA: “Do you accept JE?”

JE nodded that he accepted. Thus, the student JA called the group to work again highlighting the trials and experiences of JE.

CA: “So, now I want to see the way he wanted to talk at that time about the experience.”
When they began to talk, the causes of the problem appeared and, through the intervention of the teacher, the situation was gradually stabilized. But, JE, still had some trouble to expose herself, then the teacher realizing her fear and weakness, suggested:

Prof: “Try, even if it to fail. It’s just for us to see how your suggestion would be, as you said, no matter if water gets into that, but you are even trying and learning from it, aren’t you? Because even some water gets some water, we can compare why water enters and why would not otherwise enter.”

Shortly thereafter, JA called the group on an attempt to jointly host JE.

JA: “Let’s do the following... After trying it on his way, we begins to speak: I talk about that in a way, then in case you have an idea you tell us?”

With the support of the group and the teacher, JE, confident, returned to perform the task actively, explaining their actions and demonstrating different attempts.

CA: “You’d better not bend that way.”

JE: “It is because if you do not fold it does not fit in the glass. It may be that this way works out!”

As mentioned previously, the student JE did not risk exposing his strategies of work for the members of the group, but after reworking the impasse between them, this student started to improve on the learning process in science: He justified his actions, analyzed better the results obtained, and gradually conquered his space in the group. By provoking dialogue, conducted by the teacher aiming to form a group, the changes deemed necessary for the implementation of a new work environment, more supportive and harmonious occurred in face of the impasse installed. At this meeting, it was necessary a group destabilization for the group felt the need to reflect on the reaction presented by JE. It was necessary that JE paralyzed and, in such a way, confronted the group in order to make the changes. Therefore, the dilemma experienced by the members of the group was appropriate in that situation in which the group is found, since it contributed to its improvement; an aspect that favored its evolution in operational terms. The teacher let the group talk and kept the balance as a coordinator, guiding the work. She also provided support for overcoming the problems without creating dependency in order to let the group take responsibility for their actions.

At the end of the lesson, the group was more focused on solving the challenge and can progress in learning science as well as in social relations issued by each of the members on behalf of a collaborative learning. Considering the following, the new group setting for solving the challenge proposed in this class.

Prof.: “But why isn’t it wet?”

JE: “Because we put it slowly and then fast.”

EP: “No, teacher, the little glass is already with air inside and when you put it in there, there’s no air and the air is there taking up space.”

JA: “-Wouldn’t it be wet...? Oh, there’s no air inside the glass. When we put it, it cannot come out, then when we’re sinking it, how will the water enter if the air is in there? The air will not be able to go out by here!”

All of them watched as JA talked and showed the experiment.

JA: “-We can not try another way now?“

JE: “yes you can!”

JA: “-Oh, let me give it a try! I think it will get wet, even though... I have my doubts, because I think that this way it may work.”

While JA prepared the glass with screwed up paper in the bottom, the others were watching. All of the other members kept following JA, while placing the glass slowly dipped into a bowl, but with the edge facing up. Then the glass was filled with water and he smiled to the group members, who said in chorus: “-Wetted”. The teacher, who also accompanied everything, asked them:

Prof.: “-Why has it got so wet like this?”

JE: “Because if it is put like this the water will.” (Demonstrated again with a glass facing to the side).

JA: “-I know why. Because he put a half and then the water started coming in and the air was going out
JA: “Look Here! It cannot be done like that (covers with the hand the glass) in order to avoid the air to come out.”

EP: “Hey teacher, can it be done this way?”

Prof.: “-How is the challenge? Read the box...”

They read and PE says: “So it can be done in any way!”

Prof.: “-And then, have you finished?”

JE: “No!”

EP: “Look teacher, the water went in!”

Prof.: “Why?”

EP: “Because there are some air bubbles coming out!”

JA: “-yes, that time it did not come in, and now the water entered because the air went out.”

Prof.: “-I wish you four talked, because I guess you are not thinking the same things.”

JA: “-Why do you think JE?”

JE watched carefully CA student who at that moment put half of the paper inside the glass and screwed and stuck, and the other half on top of the glass. Following this, the student turned the glass and sunk into the bowl with water holding the top that was sealed by paper. The paper that was not wet inside, so they reported success in solving the challenge for the teacher and repeated the experiment several times in this way. Then the teacher asked them: “-And why the water does not enter?”

PE: “It is because there is air inside teacher, and puts business here (showing the glass) does not come out.”

Prof.: “And when the air comes out?”

Students responded in chorus: “Hence, the water enters!”

From the data collected it can be inferred that the group experiences and teaching mediation allowed an evolution on the thinking and in the action of these students in re-elaborating their conceptions of physical knowledge in view of solving the problem. The group dynamic aspects of operability when its members established a dialogic relationship in carrying out the task. Another important element to be highlighted, by reading psychoanalytic pichoniana, is the configuration of the group as a place of production of own subjectivities; dynamics that contributed to the proposition, by the teacher, interventions toward an evolution on the levels of socialization and strengthening the capacities of their students to work guided by a task. In this case study, it is relevant to mention a promising aspect of learning of concepts in more elaborate levels, so that the group remained focused on collaborative learning, raising to upper levels the links that each of the students had been setting with knowledge, teacher, as well as with the other group members.

5. Final Comments

The study herein aimed to uncover subjective relationships set among the participants of a learning group during the performance of a Science Workshop for elementary school students and, at the same time, understand the way they were structured to perform the tasks, through lessons oriented by the teacher. We tried, therefore, to provide support for the teacher to plan the intervention in order to facilitate the group work. This research, in special, intended to identify some subjective conditioning that featured the different positions that students took in face of the knowledge and to teacher during the performance of physical knowledge at an office of science in Elementary Education I. Therefore, it could contribute to the teaching practice, especially regarding the teaching and learning process that promotes the group work. Based on psychoanalytic theoretical framework of Pichon-Rivièrè we believe that our results point to some elements that allow a better comprehension of the work of the learning groups and provide suggestions for its organization in the classroom, in order to enable the improvement of science teaching by the subjectivity.

Earlier, the group expressed negative links, at the point of rejecting a member. Acting with contempt for the actions of JE, the members of the subgroup left him out in the begging, but later explained the exclusion of the student verbally.
It is important to mention that at the moment that the teacher changed the intervention, inviting the group to work more collaboratively, the group also changed. The contents deposited by the teacher in the group undertook everybody to a more effective communication. From that moment on the teacher coordinated the group and proposed a reflexive action, allowed them to show their anxieties, explained their cognitive and affective problems providing students space for working together in an attempt to solve their conflicts, in order to facilitate the communication and consequently improve the learning of sciences.

During the activity, the teacher made interventions in an attempt to foster greater group interaction, tried to promote a cooperative learning and, in some moments, she preferred to let the students of the group more comfortable to talk together and solve their problems without her excessive interference. At certain point, JE had a problem: the exclusion, i.e., the implicit content and the core of the problem to the group formation. Given this situation, the teacher was sensible to present information, solving the issue set in that context, making appropriate decisions without taking advantage of any of the students involved. Nevertheless, the first action made for this case was checking it, then the reading of the events, and finally questioning intentionally to challenge group.

To verify the situation, the teacher used questioning who invested in “listening” for all of the involved ones. Attempted to understand the context of the situation that envolved them, and the causes and effects of the conflicting relationship generated due to the circumstances presented, likewise. As she reported what happened, the group members expressed what they thought, facilitating the elaboration of their anxieties and resistances.

The role assigned to the teacher was double. In one hand, she inspired confidence, not much for knowing all the answers, but knowing how to conduct a process of resolution of cognitive, affective or emotional problems by providing some stability to the group. In other hand, while she decided on the task performed and recognized the competence of the group. The group members were collaborators in the process, mobilizing plasticity and clarification of roles that could facilitate the learning for thinking together towards solving the problems presented.

According to Souto Asch (1990), group representations arise from the interaction. The group in the process goes reaching different levels of relationship and organization. Its result is not linear, but spiral, and happens by the confrontation and resolution of the several conflicts that follow and are structured on another. When a group (re)elaborates its lived experiences, there is the group evolution, rightly promoted by the occurrence of conflicts that arise from moments, in which the components are building interrelationships that result in common findings to the whole group. In the learning process, the subject increases the integration and feelings of belonging to a group, participating in conflict resolution dynamics of the class. The group goes through different basic assumptions and shares emotional states, progressing continuously in their own learning process, evaluating failures and difficulties. This spiral that happens along the way the group process must be closely monitored by the teacher as an important integrating element of the learning process.

Even though, two factors must be taken into account. Firstly, the nature of the linkages established can vary greatly from one subject to another, in other words, the links are particular ways of reconstructing the reality and are up to the idiosyncrasies. Secondly, one of the characteristics of the links is that they are dynamic and interdependent, that means, a change in a link has repercussions in others. That explains why a change in the methodology of the class can cause a change in the relationship of the student, for example, with knowledge. Moreover, it also explains why a change in a particular link (the task of working in group) may not be enough for a significant change, in case other links have not been affected (for example, teacher-student relationships and student-student).

In a nutshell, based on the results presented here, it is possible to point out some considerations for the teachers training, highlighting the need of an educator “knowing how to recognize” that the links that tie her students at a certain satisfaction, opening room for their subjective choices. The teacher’s interventions should occur in order to point to the group as the work has been done, specially, how it strives to work under the difficulties presented by its members.

The support that the teacher may offer group acquires meaning only in the moments in which he interferes on the changes and walks with the group in order to overcome their difficulties and to organize in a more stable form. Somehow, the teacher has to anticipate the perception that effective collaboration among the members may come with the development of group work.

From this perspective, whose focus is to think and act in the face of uncertain situations mobilized by the group of students, the teacher’s role, at the beginning of a group refers to the rules of his teaching process, in other words, if he can launch an effective invitation at unconscious level there will be more chances to meet the
need for security that the group demands. So, for that, the teacher should first try to hear the students’ complain, not in order to solve them promptly—what would produce a state of dependence—or would disqualify them, but, pay attention to these complaints instead and return them to the group in a more elaborated way.

One point that deserves a specific analysis is the dependence of the group of a founder or leader. Early in the development of the group, the leader with authority for acting, setting objectives, tasks, allows the group may reach their achievements without the need of exposing themselves. However, remaining in this position the group seems to crystallize the assumption about their inability of carrying out each member’s own learning and irremediable need to depend on someone able to provide what you need.

Thus, if the leader accepts to manage the dependency, initially the effect may be positive, as it allows the group to be structured and leaving the seriality. On the contrary, if the leader refuses this role, the group will feel frustrated and abandoned; a feeling of insecurity will possess the participants and the group may be separated. However, as the time goes by, the dependency becomes an obstacle to the development of the group because it prevents the emergence of the creativity of its members5.

If our interpretation is correct, the “listening” to the teacher should focus on both the group situation of the students as what they know. It is important to stress that the teacher’s intervention must be to orientate and discuss the production of students as a result of the work of the group and not just of the work of the members; he should not forget that the task is being performed in groups, talking to the group and not only with some of its members. Thus, by assuming that it involves the work of the group, it will be more likely to be heard by the students, being recognized as a guide in whom they can trust and who will offer contributions.

The teacher’s interventions should occur in order to point to the group how the tasks are compatible with the knowledge of the majority, in other words, with their chances of satisfaction in learning how the work is being carried out collectively and how the group strives in working on the difficulties of its members. The support that the teacher may offer to the group itself, only acquires meaning for the group in moments when the teacher works on the changes that the group suffers, and walks with him in order to overcome their difficulties and to organize in a more stable form. Such actions are understood here as important strategies to encourage and enable the construction of knowledge in science. Thus, the dynamics designed by the group aggregates, respectively, the “instructions” of the teacher about what she conceives as sciences, the sciences and how to learn why learning sciences.

A strategy that seems plausible to our results, it consists in the teacher stimulating the flow of ideas and concerns among students, as well as causing mobility roles. In this sense, the teacher may return to the group a question asked by a student (rather than giving the answer ready to pronounce a “do not know”), encouraging debate among them and allowing them to learn respecting the differences and particularities of each, as observed in this work while solving the challenge. It can also be requested that certain activities be answered by some members, respecting the knowledge of each promoting a successive socialization of results.

According to Barolli (1998), when the teacher acts this way his interventions get a new quality as pointing and revealing the way the group is structured in different moments of its work. It seems that it is how it can contribute to the strengthening of the group and hence for the development of its autonomy. Through this joint effort that students are prepared to endure the difficulties of development and all that entails efforts to learn. If the teacher makes interventions that are aimed solely to suit individual difficulties, could reinforce assumptions that are more active and thus, fail to contribute to the idea of cooperation, while successful form of participation and individual growth, be incorporated by group.

It is up to the teacher to help students work cooperatively, providing support for this process, by identifying the elements that characterize each stage of the organization of the group to face its task, in special, in this work the task of learning sciences. Although, it is necessary that the process of group development occurs in a long term and has some stability in their composition.

From the theoretical approach used, we highlight its importance in understanding the role of subjectivity and unconscious aspects of the teaching and learning process. This framework articulates concepts of group psychoanalysis, in particular, the theory of link Pichon-Rivière, which characterizes the intersubjective links, the roles and the task to be performed by members of a group.

5We must highlight also the existence of a functional dependence, which arises as necessary relation in moments that the group, in order to achieve their objectives and complete the task, requests a guiding or a piece of information. This dependence is compatible to the advanced levels of operability of the group, once it does not prevent neither the learning, nor the task, on the contrary it facilitates, and answers to a rational quest for means to achieve the ends.
In interpreting this situation experienced by the teacher, from the point of view of subjectivity, new questions are posed, and concern uncertainties, instabilities and complexities intrinsic to the relationship of teaching and learning. Undoubtedly, the introduction of subjectivity in research on teaching and learning points to the complexity of the teaching work, with difficulties and increased risk of failure effects, and possibly with loss of control of its production. The teacher who does his work like this will be susceptible to ambiguities, resistances, successes and failures arising from his profession. In other words, he will have to abandon the illusion of having absolute power over their students and not being able to control rationally all the teaching situations.

We believe that the psychoanalytic theory can help decisively to focus on the core of the impasse and the possibility of significant change. According to Barros et al. (2005), we also believe that our analysis can help teachers realize and locate any eventual conflicts in their classrooms faster and more accurately, not for providing a theoretical standard directly applicable, but for present different cases that offer hints and tips to keep you alert during the teaching practice.

It has also to be considered that the psychoanalytic framework contributes to rethinking educational practices in order to assist teachers in developing professional skills to handle with situations of impasses in classroom. Thus, it takes into account the totality of the subject, which, in an autonomous and non-arbitrary way, mobilizes his professional knowledge on the decision-maker and on a more complex exercise of the profession.

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References


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Collaborative Learning in Maternity and Child Health Clinics

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Abstract

The health and wellbeing problems of the families with children have become more complex today. Improving preventive services and facilitating an early intervention in health and wellbeing problems of the families are the main challenges. A better interprofessional collaboration (IPC) of the professionals is needed to maintain the well-being level of the families high. These are skills to be learned during undergraduate education. An interprofessional pair training (IPT) for maternity and child health clinics was implemented in collaboration with primary health care centre and two universities of Oulu to develop an interprofessional education (IPE) model for undergraduate level students. Fifth year medical students (n = 101) and fourth year public health nurses (n = 31) and teachers participated in the training program during 2010-2012. The study aimed at investigating students’ attitudes and readiness for interprofessional learning (IPL), at strengthening their professional skills and at gathering clients’ experiences. The interprofessional student pairs met with the client visits independently. One pair contacted three clients during the day. They examined and observed the examination of the other pair. The feedback was collected from the students and the clients. Students’ attitudes and readiness for IPL were assessed using RIPLS (Readiness for interprofessional learning scale). Both medical and nurse students attached great importance to teamwork and collaboration. Nurse students appreciated the learning of roles and responsibilities more important in comparison to the medical students. A tendency for stronger professional identity among medical student was noted. The clients’ expectations were fulfilled. The training periods gave valuable experience to develop IP pair training for collaborative practices in primary health care and undergraduate health care education. The study results are important for curriculum development as well.

Keywords

Collaborative Pair Training, Maternity and Child Health Care, Interprofessional Education, Undergraduate Medical Studies, Undergraduate Nurse Studies

1. Introduction

Finland has one of the lowest infant mortality rates in the world (Infant mortality rate; http://data.worldbank.org/), largely because of effective family support policy and preventive health care services (Arntzen et al., 2007; Hermanson et al., 1994). Municipal healthcare centres run preventive maternity and child health clinics, which provide low-threshold services to all families and free of charge. Maternity and child health clinics are aimed to ensure a good standard for health for mothers, unborn children, infants and families as a whole. Personalized health advice is given to support the psychosocial and physical welfare of children and their parents. In addition, good parenthood, strong and healthy relations within the family and right choices for healthy lifestyle are supported. Health care professionals also actively seek best practices to enable families to take responsibility for their own health. Interprofessional (IP) team is providing the services. The main professionals in charge are public health nurses and medical doctors.

The services are used by almost 100% of families regardless of socio-economic status. However, the health and wellbeing problems of the families with children have become more complex today, (Häggman-Laitila, 2003; Häggman-Laitila & Euramaa, 2003) which has to be taken into account when providing and improving the preventive health services. Nowadays, socio-economic issues are more strongly connected to the health problems of the families and children (Gissler et al., 2009). In spite of the good service system, new solutions and a better interprofessional collaboration (IPC) are now needed to maintain the wellbeing level of the families high. Improving preventive services and facilitating an early intervention in health and wellbeing problems of the families in a client-oriented and economically sustainable way are the main challenges according to Finnish Public Health program, Health 2015 (Ministry of Social Affairs and Health, 2013).

Curriculum development in health care education aiming at health promotion and disease prevention skills is needed. Interprofessional education (IPE) models may serve as a good learning environment for such education. The study aimed at investigating students’ attitudes and readiness for interprofessional learning (IPL) and their learning experiences in preventive health care. The development of IPE and interprofessional training (IPT) at an undergraduate level challenges educational organizations (Hammick et al., 2007) and the health care educators (Zenzano et al., 2011). In order to meet these challenges, an IPT model for preventive maternity and child health clinics was developed in collaboration with health care centre of the city of Oulu, University of Oulu (UO) and Oulu University of Applied Sciences (OUAS). Fifth year medical and fourth year public health nurse students participated in the training periods during the years 2010-2012. The second aim was to strengthen students’ professional skills by working with clients in a client centred manner. The third aim was to gather and evaluate clients’ experiences after the clinical visit.

2. Methodology

A planning group consisted members from each organisations. Detailed programs and timetables for the one day training periods were created. Orientation material was prepared for students. Two separate training days were arranged during each semester, one day in maternity- and the other in child health clinic. Altogether 132 (N = 31 public health nurse and N = 101 medical) students took part in training days.

Students were divided in IP pairs. Facilitators were named for each pair. The pairs planned the procedure of the visit, and examined the client. In addition, they observed and reflected the work of the others. A tool for observers was modified from Anaesthetists’ Non-technical Skills (ANTS, 2012). It consisted several areas including task management, team working, situation awareness and patient centeredness and professional decision making. One pair operated the client’s visit independently, while another pair observed their working. Then the roles of the student pairs were switched so that finally all pairs completed all the tasks. All together six clients were examined during one day. Facilitators, doctors and nurses, were all the time available to guide and help. The feedback was collected from all the students (response rate 100%) and the clients (n = 94) by using ques-
tionnaires (Table 1 and Table 2).

The feedback questionnaire for the students (Table 1) consisted of background questions, structured statements according to RIPLS (Parsell & Bligh, 1999) and three statements of pair training (scale 1 totally agree −5 totally disagree) and two open questions.

Table 1. Student’s feedback questionnaire.

| PART I | Background | • Age  
• Degree program  
• Earlier experiences of IPE  
• Learning with other students will help me to become a more effective member of a health care team  
• Patients would ultimately benefit if health care students worked together to solve patients problems  
• Shared learning with other health care students will increase my ability to understand clinical problems  
• Learning with health care students before qualification would improve relationships after qualification  
• Communication skills should be learned with other health care students  
• For small group learning to work, students need to trust and respect each other  
• Team-working skills are essential for all health care students to learn  
• Shared learning will help me to understand my own limitations  
• I don’t want to waste my time learning with other health care students  
• It is not necessary for undergraduate health care students to learn together  
• Clinical problem-solving skills can only be learned with students from my own department  
• Shared learning with other health care students will help me to communicate better with patients and other professionals  
• Shared learning will help me to clarify the nature of patient’ problems  
• Shared learning before qualification will help me to become a better team worker  
• The function of nurses and therapists is mainly to provide support for doctors  
• I’m not sure what my professional role will be  
• Training together promoted pair work skills  
• Pair training helped to understand the importance of IPC  
• Pair training clarified the overall view of preventive and holistic health care  
• Personal learning experience  
• Suggestions to develop IP training |
| PART II | According RIPLS | From original scale statements  
1 - 5, 7 - 9  
10 - 13, 15 - 16  
17, 19 |
| PART III | Pair training |
| PART IV | Learning experiences |

Table 2. Feedback questionnaire for clients.

| PART I | Background | • Age of the respondent  
• Mother/father  
• Focus of health care visit (pregnancy, child health care)  
• Attitude towards me was friendly  
• They listened to me  
• I got answers to my questions  
• The guidance was understandable  
• They put their minds to my issue thoroughly  
• The staff worked reliable  
• All examinations and procedures were made professionally  
• The visit met my expectations  
• The atmosphere was positive  
• The staff acted well as a team  
• The staff respected professional skills of each other’s  
• The staff was proficient  
• After the visit, I had a clear impression of the future health care plans  
• The staff worked without hurry  
• Five out of twenty adjectives to choose (10 positive, 10 negative) |
Feedback questionnaire for clients (Table 2) consisted of three parts: background (age of the respondent, focus of health care visit), experiences of the visit (14 statements, scale 1 - 5) and evaluation of the treatment and service (five out of twenty adjectives to choose).

The quantitative data was analyzed using IBM SPSS Statistics, version 21 (1989, 2012 SPSS, Inc., an IBM company). The attitudes and readiness of medical and nurse students for IPL were investigated using the three subscales of RIPLS (Teamwork and collaboration, Professional identity, Roles and responsibilities) (Table 1) presented by Parsell & Bligh (1999). The differences between medical and nurse students in these subscales were investigated by Analysis of Variance (ANOVA). The open questions were analyzed using the content analysis (Krippendorff, 2013).

3. Results

3.1. Students’ Readiness for the IPT

According to the results the students’ readiness and attitudes towards IPE were very positive in general (Figure 1). Working as an IP team was highly valued in both of the student groups (medical students: M = 4.07, SD = 0.56; nurse students: M = 4.21, SD = 0.48; p = 0.194).

Statistically significant differences between medical and nurse students were seen in the subscales of roles and responsibilities (M = 3.18, SD = 0.81 vs. M = 4.06, SD = 0.80; p < 0.001). A tendency for a professional identity among medical students was lightly stronger compared to nurse students noted (M = 3.86, SD = 0.59 vs. M = 3.87, SD 0.42, p = 0.947), although the difference was not statistically significant.

Next, the readiness and attitudes of the students towards IPL were investigated in more detail. Considering the questions of teamwork and collaboration, over 90% of the students thought that learning with other students will help them to become more effective team members. Team-working skills were considered essential for all health care students to learn. In addition, about 90% of the students agreed that a patient ultimately benefits when the health care students worked together to solve a patient’s problems. Almost 100% of all students agreed that trust and respect for each team member is needed. Most of the students agreed that IPL before qualification will improve relationships after qualification, but there was some variance between the groups.

When evaluating the learning of the clinical or communication skills, more differences between the medical and nurse students were found (Figure 2(a) and Figure 2(b)). Nurse students seemed to learn more clinical skills (Figure 2(a)) whereas the medical students thought that this type of training could improve the communication skills (Figure 2(b)).

Both of the student groups highly disagreed the statement: “I don’t want to waste time in learning together”. Only 10% of the students thought that it is not necessary for undergraduate health care students to learn together. Two out of three students agreed that shared learning with other health care students will help them to communicate better with patients and other professionals and that teamwork clarifies the nature of patient problems. About 80% of medical and 90% of nurse students thought that shared learning before qualification will help them to become better team workers. Differences in opinions of the student groups about solving clinical problems were found (Figure 2(c)). Medical students were more prone to think that clinical problems can only be solved with students inside one’s own profession.

The questions about the roles and responsibilities showed that 17% of the medical students thought that the main role of the nurses and therapists is to provide support for doctors, whereas only few of the nursing students agreed with this statement. The difference between the groups was clear, but not significant (Figure 2(d)). 30% of medical and 20% of nurse students felt that they need to learn more than the others.

3.2. Pair Training Experiences

According to the assessment it seemed that the training promoted pair work skills of the students. IPL was considered important during the pair training. The students considered that they learned preventive and holistic patient and family centered care (Figure 3).

Positive experiences promoted learning but some of the students felt that they did not have enough earlier experience to fully benefit from this type of training and that they had not been prepared well enough. The professional roles of both professions were better understood and the students learned how to support each other. Overall, the students got familiar with preventive health care system during the training session.
Figure 1. The readiness and attitudes to IPL using RIPLS scales (1 totally disagree - 5 totally agree).

Figure 2. Differences in students' perception of teamwork (a), collaboration (b), professional identity (c), roles and responsibilities (d).
“I got good experiences of how the public health nurse and the doctor can support each other’s work”.
“Collaboration with the nurse student guided me to think from a different point of view”.

The focus of the training was based on holistic care of the patients and the whole families. IP pair work during the whole visit was a new model to train students in patient and family centered manner.

“It was challenging to work in a team and in the same time to keep the focus in the patient during the visit”.
“It was important to remember to support the parents and the family”.

3.3. Clients’ Feedback

Altogether 94 of the clients answered to the feedback questionnaires (Table 2). Almost all of them agreed that the treatment was friendly, they were listened, the atmosphere was positive and the staff respected each other’s expertise. Most of them agreed that they got answers to their questions and that the guidance was understandable, staff performance was trustable and the examinations were done professionally and thoroughly. The staff worked in good cooperation. The feeling after the visit was good and they knew the care plan until the next visit.

4. Discussion

The focus of this research was to investigate IPT in the undergraduate medical and health care studies in order to develop curriculum focusing more to preventive skills. Teamwork has been emphasized as a key feature to organize health care services for more safe, efficient and patient centred way (Finn et al., 2010). According to Bridges et al. (2011) training teamwork skills in primary care will focus to improved healthcare outcomes for patients and families. Team based approach to organize primary health care has been investigated and developed in many countries (Jaruseviciene et al., 2013; Goldman et al., 2010; Bunniss & Kelly, 2008). However, these studies have been made with qualified doctors and nurses with the focus to improve messy roles and responsibilities of the health care teams.

Our study showed that the training periods gave a possibility for the students to work as equal health care professionals together in pairs. The students thought that they need to trust and respect each other and this showed good readiness for IPL and IPC. The active role of the patient and family as equal partners included in the training as well. Elements of collaborative practice include responsibility, accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust and respect (Bridges et al., 2011). The students learn with, from and about each other (Barr et al., 2005).

Both medical and nurse students considered teamwork and collaboration important (Figure 1). Morison et al. (2004) had similar findings in their study for undergraduate fourth year medical and third year nursing students. Also Williams et al. (2012) had similar findings of 418 students from seven health care programmes. According to both of these studies, the patients clearly benefited of IP teamwork.
According to our results, the students learned about their own professional identity during the training. Over 90% of the students thought that learning together with other health care students before qualification is very beneficial. The training to work as an IP pair succeeded well and students considered this type of training as a positive learning experience. In addition, they had much more skills and knowledge in use compared to the situation where they had to work alone. Working with the pair during the visit gave also confidence to meet the client. Our findings were more positive result than in the study by Morison et al. (2004).

The results showed that training together increased understanding of the roles and skills of the other health care professionals. Differences between the medical and nurse students were seen in attitudes and readiness to solve clinical problems and to learn communication skills when working with other health care students (Figure 2(a), Figure 2(b)). Similar difference was seen in the previous study, although the difference between the medical and nurse students was clearer (Morison et al., 2004).

The aim of IPT (Pare et al., 2012; Medves et al., 2013) was to learn patient centeredness in practice. Bridges et al. (2011) pointed that an IP team has to have common goals and they have to plan their work together to improve patient outcomes. Collaborative interactions are achieved through sharing skills and knowledge to improve the quality of patient care. In our study, according to the students’ opinion, more practice and common clients are needed to learn working with IP team and at the same time to keep the client’ needs and service in focus. According to the feedback of clients their expectations were fulfilled. To provide comprehensive client care, the clients thought that the students and staff worked in good collaboration as a team. The feeling after the visit was confident. They were listened and cared, thoroughly and carefully.

5. Conclusion

These training periods gave valuable experience to develop IP pair training for the future and for all of the health care students. The strategic plan to organise future health care services in Finland includes prevention and primary care. Sharing the tasks with doctors and nurses is one of the strategies.

The study results are important for curriculum development of medical and nursing studies. A new type of IP learning centre is developed together with city of Oulu and the two universities. It will be one part of the whole to produce the primary and preventive health care services in Oulu. The study gave important experience on how to carry out the facilitation of the students in IP collaboration with the teachers and the staff.

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Teacher Mediation in a Collaborative Learning Laboratory of Physics, a Virtual Environment for Teaching and Learning

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Abstract
We know that physics is a difficult subject for many students to understand. From this observation, several studies have been performed to investigate the causes and possible solutions to this problem. Among the numerous existing lines of study, we find investigations on the use of Information and Communication Technologies (ICT). Based on Vygotsky’s theory, we developed a Virtual Environment for Teaching and Learning (VETL) to foster interaction and collaborative participation among students, and between them and the teacher, to solve problems in physics. We seek to present in this paper how teacher mediations should be conducted in this environment in order to foster collaborative interactions and thus facilitate the internalization of scientific concepts by students. We found that students have an expectation as to the participation of the teacher in the environment, and as a consequence the teacher should seek to virtually interact with all groups, even those who have managed to solve the problem by themselves, at least to communicate to the students if they solved it correctly.

Keywords
Mediation, Virtual Environment for Teaching and Learning, Collaboration, Interaction, Zone of Proximal Development, Actual Development Level, Collaborative Learning Laboratory of Physics

1. Introduction
With the growing development of Information and Communication Technologies (ICT), in particular with the popularization of computers, smartphones and the Internet, the school environment is being challenged to inno-
vate and to promote quality education mediated by the latest technological features, especially the Virtual Learning Environments (VLE) and the Virtual Environments for Teaching and Learning (VETL). The VETL denomination concerns broader environments than the VLE, as they integrate the actions of teaching that are fundamental to learning, i.e., they take into account the role of the teacher in organizing, planning, implementing and evaluating educational activities on the environment (Nardin, Fruet, & Bastos, 2009). The VETL support distance education, be it fully or partially online, as they present characteristics such as connectivity and hyper-text navigation interface, and also integrate, in a single environment, tools of hypermedia, activity and communication (which can be synchronous, such as chat rooms, and asynchronous, like forums), that favor and promote, in particular, the interaction among students and between them and the teacher.

Based on the potential of such an environment, we developed a VETL for teaching physics, called Collaborative Learning Laboratory of Physics (LAFIS, for its acronym in Portuguese), freely available at http://www.lafis.ufms.br (Mello & Gobara, 2013b). We sought to ground our efforts on a theoretical framework of learning for the design and development of this environment as well as for the analysis of the classes held, to evaluate it as a supportive environment for collaborative learning. Basically, LAFIS presents two environments, identified as virtual laboratories. These laboratories were structured to promote collaborative interactions between the individuals involved in an educational system comprising the students, the teacher and the problems to be solved.

For the evaluation, we developed a survey aimed at identifying how this VETL could be used, as well as potential difficulties for students, through the analysis of the interactions between them, the computer and the teacher, based on Vygotsky’s\(^1\) theory. To achieve this goal, we initially performed a step called “pilot phase” and subsequently evaluated the use of LAFIS during the development of some didactic sequences, through which we tried to learn the extent to which the argumentations that take place in the environment and the consistency of the sequence should be guided, so that the environment can foster the learning of concepts of physics.

The results we obtained during the pilot stage of our research were encouraging. This testing of LAFIS was held primarily to identify and correct errors in the presentation and programming of the environment (Mello & Gobara, 2013a). In addition to these corrections, we found that the interaction between students would necessarily happen if the problem was proposed in such a way that its solution depended on the help of a colleague. Therefore, we restructured LAFIS so that certain elements fundamental to the solution were initially available to just one of the students, with the possibility of “teleporting” them to the other lab.

Still in the “pilot phase”, we proposed to the students a problem that contained a link to a simulation of PhET\(^6\) (2014) regarding periodic waves on a string. Students had to set up the simulation according to the parameters presented in the statement of the problem and could interact with each other to identify quantities such as wavelength, amplitude, period, frequency and speed of propagation of the wave (Mello & Gobara, 2013b). We found that LAFIS favored the collaborative interaction among the students investigated, since 78% of the solutions posted in the chat originated from collaborative interactions among students or between them and the teacher. Furthermore, in the written evaluation applied after the VETL class, students solved problems they could previously only solve with the help of peers or the teacher, evidencing the potential of using this environment, in association with the developed instructional sequence and the teaching procedures, for learning and hence for the development of students.

In this article, in particular, we present theoretical and practical orientations for teachers who may come to use LAFIS in their pedagogical practice, so that they can take advantage of the environment’s potential and also submit it for evaluation in other social contexts.

Initially, we present the theoretical framework of learning that served as a basis for the development of LAFIS and the analysis of the lessons mediated by it. We then seek to explain the dynamics of the environment, its tools and how to register problems in it. Afterwards we present some guidance as to the formation of students’ groups to solve problems, taking into account their learning level. Finally, we suggest the teacher some ways to interact in the classroom, based on the experiences already carried out on this environment in the schools we investigated.

2. Theoretical Framework for Learning and the Teaching Practice Mediated by VETL

The development of LAFIS and the analysis of classes held on it were based on the ideas of Vygotsky (2007, \(^1\)With the exception of one of the references in this work, which uses the spelling “Vigotskii”, we will refer to the author using the spelling “Vygotsky”.)
2008), a theorist of learning for whom students’ collaboration, among themselves or between them and the teacher, is essential for the development of skills and strategies fundamental for the solution of problems. Vygotsky’s theory assumes that learning is enhanced when it acts in the so-called Zone of Proximal Development (ZPD) of the learner. To explain the concept of ZPD, Vygotsky defined two levels of human development: the Actual Development Level (ADL), which corresponds to psychic functions already developed (skills and knowledge that have been internalized by the student) and is estimated by that which the person performs alone, without cooperation, thus being, at least theoretically, “measurable” by individual tests; and the Level of Potential Development (LPD), determined by problem solving under adult guidance or in collaboration with team-mates who have already developed such skills.

The ZPD is an intermediate level of development, in which the student can solve certain problems only with the mediation of another person. Once the concepts associated with the resolution of these problems are internalized by the subject, he will be able to solve them irrespective of aid. In this case, there will be an increase in the Actual Development Level of the learner, which for Vygotsky demonstrates that learning can precede and leverage development.

Figure 1 shows a schematic representation of the levels of development and the ZPD.

As we can see, the movement described, starting from the student’s ADL and working in their ZPD to eventually arrive at a new ADL, shows that for Vygotsky the learning process is dynamic and dialectical. But how can teachers apply the fundamentals of Vygostky's cultural-historical theory in their teaching? Gasparin (2009) sought to answer this question by presenting a didactic proposal whose theoretic-methodological foundation is historical-dialectical materialism.

Basically, the teachers must perform their work starting from the social practice of the student, i.e., the identification of (spontaneous) concepts found in his ADL. Then they should work with theoretical abstraction, presenting to the student the scientific concepts they want to teach, always trying to work within the student’s ZPD. Finally, they return to the new social practice of the individual, assessing whether or not the student internalized the concepts which were studied. If there was (even partial) learning, according to the assumptions of Vygotskian theory, it is considered that the learner’s ADL was reconfigured. From this point on the teacher can work with new concepts, since Vigotskii (2010) states that, from the point of view of the students’ overall development, it is ineffective to want to teach them what they already know, i.e., knowledge that is already in their ADL. However, if after class the teacher comes to the conclusion that there has been no learning yet, or that there was only partial learning, she should continue to work in the students’ ADL, providing new mediations, encouraging new interactions and proposing new assessments to identify if the student can already do independently what he could previously do only with assistance (ZPD).

We tried to use LAFIS in the classroom based on these theoretical and methodological orientations, thus seeking to promote collaborative interactions among the students. Roschelle & Teasley (1996) make a distinction between cooperation and collaboration. Cooperation is characterized by division of labor among the participants, i.e., it is an activity in which each person is responsible for part of the resolution of the problem in question. Collaboration involves the coordinated efforts of all group participants in order to solve the problem together. We designed LAFIS aiming to promote collaborative interactions in its environment. We know that this depends on how students interact with each other while solving the problem, but we believe that teacher mediation can direct the group’s actions so that the work will be collaborative in nature.

3. Structure and Operation of the Virtual Environment for Teaching and Learning

LAFIS was designed to promote the virtual interaction of students with one another and with the teacher through the chat room available on the environment. The program consists of two environments, identified as virtual laboratories. The information exchanged between the students and between them and the teacher is stored in a database. The teacher may in turn register problems on the environment or use the problems previously registered in the questions database.

Figure 2 shows the screen of the “Questions Database”, available in the teacher’s restricted area. There the teacher can disable or enable a problem for the students to solve, exclude problems, edit them (as long as they have not been registered by another teacher), and form groups of students to solve them, or mediate the students’ groups synchronously or asynchronously.

After choosing the problem to be solved by the class, the teacher should form groups of students, who will
Figure 1. Schematic representation of the Zone of Proximal Development (Silva, 2009, p. 16).

Laboratório de Aprendizagem Colaborativa de Física

Banco de Questões

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<th>Legenda:</th>
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<tr>
<td>Problema Desatualdo</td>
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<td>Problema Desativado</td>
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<tr>
<td>Editar o problema</td>
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<tr>
<td>Formar grupos de alunos no problema</td>
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<td>Mudar grupos e acompanhar as interações dos estudantes</td>
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Figure 2. “Questions Database” screen, available to teachers in their restricted area.

have access to different information distributed in the two virtual laboratories. To do so, she just clicks on the group-forming icon of a given problem, as shown in Figure 2, selects the class for which the lesson will be held, and finally selects in the presented list which students will be assigned to each laboratory.

In general, we suggest that students are grouped in pairs, so that each of them can be assigned to one of the virtual laboratory environment. However, we know that it is possible for classes to have an odd number of students. In such cases, one of the groups may have three students, two of them assigned to laboratory 1 and the third one to laboratory 2.

To solve the proposed problem, the students must exchange the information distributed in each laboratory between them. Each student must have access to only one of the laboratories. Thus, through collaborative interactions, the group will be able to virtually solve the problem.

Since this is a proposal grounded in Vygotsky’s theory, our thesis is that students’ learning can be enhanced when there is an interdependent relationship in the interaction between the learners to solve certain problems registered in LAFIS. To promote this interdependence we designed the environment so that certain elements, such as figures, tables, graphs, or equations, are available for only one student at a time. Thus, when the student
assigned to a given laboratory clicks on an element, she “beams” it to the other lab. In this way, students must necessarily interact with each other so that the problem can be solved. Figure 3 shows an example of such a problem, viewed by a student assigned to laboratory 1.

Note in Figure 3 that the student in laboratory 1 initially, has access to the figure (graph) required to solve the problem. On the other hand, when the student in laboratory 2 opens her environment, she has access to a table, that is also needed to solve the problem, as shown in Figure 4. In this particular problem we chose to make the equation available for both students at the same time.

Note that the problem can only be solved if the students have access to both registered elements, i.e., the table and the graph. However, to induce interaction among students, the graph is initially only available in laboratory 1, while the table can be found only in laboratory 2. As we have previously stated, students may exchange these elements among themselves (by clicking on them) as often as deemed necessary to solve the problem.

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**Laboratório de Aprendizagem Colaborativa de Física**

**Laboratório 1**

O som de um apito é analisado com o uso de um medidor que, em sua tela, visualiza o padrão apresentado na figura abaixo. O gráfico mostrado no laboratório 1 representa a variação da pressão que o onda sonora exerce sobre o medidor, em função do tempo, em um (1 μ = 10^-6 Pa). Analisando a tabela de intervalos de frequência acústica por diferentes seres vivos (disponível no Laboratório 2), conclui-se que esse apito pode ser ouvido apenas por:

- seres humanos e mamíferos
- insetos, galácticos e mariscos
- gatos e morcegos
- seres humanos e rãs

**Laboratório 2**

O som de um apito é analisado com o uso de um medidor que, em sua tela, visualiza o padrão apresentado na figura abaixo. O gráfico mostrado no laboratório 2 representa a variação da pressão que um onda sonora exerce sobre o medidor, em função do tempo, em um (1 μ = 10^-6 Pa). Analisando a tabela de intervalos de frequência acústica por diferentes seres vivos (disponível no Laboratório 2), conclui-se que esse apito pode ser ouvido apenas por:

- seres humanos e mamíferos
- insetos, galácticos e morcegos
- gatos e morcegos
- seres humanos e rãs

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**Figure 3.** Screen presented to a student assigned to laboratory 1.

**Figure 4.** Screen presented to the student assigned to laboratory 2.
The fact is that, every time a student wishes to have access to an element of another laboratory, he must establish an interaction with his partner, in order to ask for the element in question.

To propose such problems in the environment, we had to take into account some pedagogical aspects, as presented below.

4. Proposing Problems in LAFIS

LAFIS was based on the VELT called LEDVI, for the acronym in Portuguese of Virtual Interactive Educational Laboratory (Silva & Gobara, 2007). LEDVI also presents certain elements in only one of its laboratories, with the possibility of them being teleported to the other one, and also allows virtual interaction among students. LAFIS, in turn, provides the teacher with a functionality that was not yet present in LEDVI: the possibility of inserting problems in the environment.

Although the registration of a problem in LAFIS is a relatively simple process, the teacher should consider the following pedagogical aspects when proposing a problem in this environment:

1) Evaluate whether the physics concepts related to the problem can be found in the Actual Development Level (ADL) or in the Zone of Proximal Development (ZPD) of the students;

2) Make certain elements (tables, figures, graphs, equations) available on only one of the laboratories. Make sure the problem can only be solved by using these elements.

If the teacher deems necessary to make certain elements available in both laboratories, this can be done using the “Attach Files” tool. We did that for the equation of frequency as a function of period, as shown in Figure 3 and Figure 4.

With regard to the identification of the students’ development level, the application of individual tests is a way to evaluate whether certain concepts are already in their Actual Development Level (Vygotsky, 2007). If the student can only solve the problems with assistance from a more experienced colleague, or even the teacher, the conclusion, according to the adopted framework, is that these concepts are in the student’s Zone of Proximal Development.

Therefore, LAFIS can be used both to identify the students’ development level and to provide new learning situations. We will now present some suggestions for forming student groups in this environment, based on the adopted theoretical framework and on the classes we have already held with LAFIS.

5. Group Composition in LAFIS

The teacher is free to form student groups that will solve the problems in the environment. Strictly speaking, according to Vygotsky’s theory, the optimal groups are those formed by students with distinct development levels, so that a learner may help her colleague solve problems. However, one should make sure that the problem can actually be solved by the students, i.e., that the concepts to be internalized are part of their Level of Potential Development.

Thus, we suggest that in forming the groups the teacher should:

1) Avoid forming groups in which the concepts are already on the ADL of both students, because, as noted by Vygotsky, it is inefficient to try to teach what the student already knows.

2) Try to form groups considering that the concepts of the problem in question should be in the ADL of one of the students and in the ZPD of the other. In such cases it is possible that the problem will be solved by the students without the need of teacher mediation. Even so, we recommend that the teacher follows their interactions, and that she signals that she is doing so to the students whenever possible.

3) Form groups in which the concepts are in the ZPD of both students. In these cases teacher mediation may be essential to the full resolution of the problem.

As we can see, the individual application of a test before a class with LAFIS is essential to identify the students’ spontaneous concepts and to verify if the necessary problem-solving concepts are already in their ADL.

Another key point is the application of an evaluation after the LAFIS class, since in this way the teacher can identify if the environment interactions were actually collaborative, i.e., if they really leveraged the learning processes arising from a coordinated effort by the students to solve the problem together. This evaluation can be made in the environment itself, through the application of another problem. However, we have sought to make it individually and out of the environment, because then we can more easily identify the individual progress of each student. In particular, we try to see if the student went on to solve certain problems independently, without
further need of the assistance of others, which suggests that he has advanced to a new Actual Development Level.

We present below some suggestions about how teachers who want to use LAFIS in their classes should behave in the environment. Such practices are part of the results we obtained applying LAFIS in two public school classes in the city of Aquidauana-MS, Brazil.

6. The Pedagogical Practice Mediated by LAFIS

To mediate students we suggest that the teacher open a browser tab or window for each group to be mediated. This way all groups can be tracked simultaneously. In theory, there is no limit to the number of groups formed in the environment, depending on the amount of students that the teacher can mediate in the same class. In the classes we run, we mediate an average of about twenty students, disposed in ten groups of two students each.

Because these lessons are of an interactive nature, we observe that they tend to require more time for their execution. Therefore, when planning a lesson using LAFIS, the teacher should prepare it so that there will be enough time for discussing the students’ answers, particularly when wrapping up the lesson, at which point the teacher can ask whether the answers make sense physically. The most effective mediation is not one in which the teacher simply gives the problem’s answer to the students, but one in which she returns them the question, giving them tips but affording them the act of reflection that leads to the expected answer. It is by analyzing the answers to her questions that the teacher can identify the students’ intellectual progress.

In this sense, paying close attention to the students’ answers is an important point to be observed in LAFIS. In certain groups, for example, we note that both members agreed on the same answer (which was incorrect), and in such cases teacher mediation was essential to differentiate between spontaneous concepts and scientific concepts.

Another orientation arising from our practice with LAFIS is the need for mediation in all groups, without distinction. Even if a particular group develops the activity as expected, i.e., correctly reaches the solutions, the teacher must also mediate it. We found in certain student groups that they miss the interactions with the teacher, even if only to confirm that the answers are correct, as shown by the interactions in Box 1.

For virtual interactions to be satisfactory, the teacher should try to stay alert to the possibility that the students are merely posting the answers correctly, instead of actually interacting and discussing the results. In this way he can promote more effective interactions within groups, especially those in which only one of the students might be posting the answers in the environment. The teacher should direct students to the proposed activity, since, as much as in traditional classrooms, virtual interactions are also prone to the so-called “side conversation”.

Another interesting aspect of this environment is the ability to identify spontaneous concepts of the students. In several classes we found that many of them, even after studying with the teacher the scientific concept of wave amplitude, still had a fairly common concept that the amplitude would be the distance between the crest and the trough of the wave. For example, in a problem for which the expected wave amplitude was 20 cm, several students posted the value 40 cm. In such cases, we try to use the student’s own spontaneous concept to present the corresponding scientific concept, as can be seen in Box 2.

Even with these teacher mediations, the evaluation after the lesson on LAFIS showed us that this particular student still had the spontaneous concept mentioned in Box 2. This reinforces what we already said earlier about the importance of conducting an evaluation after the LAFIS lesson. The evaluation may be the end of a cycle, in which a particular learning process was materialized, or simply the restarting of the process, surely including the adaptations the teacher deems necessary for the student to have a new opportunity to internalize the concepts that remained in her ZPD.

7. Conclusion

We see that LAFIS is a collaborative Virtual Environment for Teaching and Learning that can help teachers identify the Actual Development Level of their students and the qualitative changes in their Zone of Proximal Development.

Quantitative analyses of the data sources for this research suggest that, under certain conditions (already mentioned), LAFIS favors collaborative interaction among the students, because the interdependence between them in the environment can promote interactive processes that can be converted into collaborative action if the subjects assist each other to solve the problems posed.
Among the subjects investigated, we found cases of students who received aid from their peers and were thus able to solve the questions posed, as well as cases in which both of the group students did not understand or know how to solve the proposed problem, but were able to do it successfully after being helped by the teacher.

The environment has been tested with students from two public schools with very different sociocultural realities (Mello & Gobara, 2014, 2013a, 2013b). The results showed the strong influence of these realities, as already predicted by the theoretical approach adopted.

We also notice that one of the main focuses that the teacher should have in her mediations through LAFIS is to make sure the interaction between students is actually happening among all group members. If a particular student is not participating in the resolution of the problem, which can happen when the group is composed of three members, so that one of them can have a more passive attitude, it is the attentive teacher’s job to intervene and encourage her participation, either by asking questions or by requesting that she performs some procedure that promotes her learning, such as the presentation of the calculations made to obtain a certain value, or the explanation of the solution to the partner.

Asking students to describe the procedure used to obtain the answers was crucial to check whether the steps taken toward the solution were consistent, proving that the answer was not obtained by chance and thus clarifying if the basic concepts fundamental for the problem’s solution were indeed internalized by the subjects and, consequently, increased their Actual Development Level (ADL).

Acknowledgements

D. A. A. MELLO thanks the “Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)” for the PhD scholarship granted for the development of this research.

References


Teachers’ and Teacher Students’ Conceptions of Learning and Creativity

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Abstract
The aim of this study was to explore what kinds of conceptions of creativity and learning Finnish teachers and teacher students expressed, and how these conceptions were related to the respondents’ epistemologies (conceptions of knowledge and learning). The participants (n = 89) answered an e-form, consisting of 3 open-ended questions (conceptions of learning, creativity and the connection between the two). In addition, there were 23 two-part Likert-type statements on epistemologies (Lonka et al., 2008) as well as 10 background questions. Mixed method approach was used to analyze the conceptions that the respondents’ expressed. Two qualitative categories of conceptions of learning came from previous research, Constructivity and active epistemology (Lonka, Joram, & Bryson, 1996). A new category also emerged: Collaborativity of learning. The answers about creativity were classified based on whether creativity was viewed as an inborn ability or something changeable, whether focus was on product or process, and whether creativity was seen as collaborative. The participants’ open-ended conceptions of learning reflected a view of learning as teacher-regulated assimilation, whereas their (structured) epistemologies highlighted reflection and deep-level learning. Creativity was viewed as something that can be improved, focusing on the collaborative process. A link between learning and creativity was identified. It shall be of interest to see, how such epistemic stands would be related to group work.

Keywords
Learning, Creativity, Conceptions, Epistemologies, Teachers, University Students, Beliefs, Epistemic

1. Introduction
Rapidly changing knowledge society sets new demands for our school system (I.e. Sahlberg, 2009; Hargreaves,

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2003; Hakkarainen, Lonka, & Lipponen, 2004). Moran (2010) questions, how educators will accomplish the feat of educating the next generation for a future that cannot be foreseen and is not readily predictable from what currently exists. It is clear that in constantly evolving knowledge society, propagating knowledge from the past is not enough anymore.

In recent research literature, the importance of creativity and collaboration have been emphasized as key components of 21st century learning (OECD, 2008). Finland’s report Basic Education 2020 (Ministry of Education and Culture, 2009) states that teaching should encourage creativity and innovation. According to Basic education 2020-report, promoting creativity in schools is attached to the methods of teaching that are used in schools: “Creativity requires chances and space for spontaneous and open-minded thinking, doing and enthusiasm as well as finding one’s own strengths.” Sahlberg (2011) claims that the demand for better quality teaching and learning is universal. According to Sahlberg (2010), conceptual learning, engaging in creative action and understanding innovation are essential elements of contemporary schooling in a knowledge society. Hakkarainen, Lonka, & Lipponen (2004) bring up an increasing need to improve learners’ critical thinking and skills in creative problem-solving through interaction between individuals and cultural processes.

Conceptions of learning, intelligence and knowledge have significantly changed in the past 20 years (Dweck, 2008). Intelligence is not seen as a stable ability anymore. As stated by Hakkarainen, Lonka, & Lipponen (2004), researchers have recently increasingly emphasized that a person’s intelligent activity is based on interaction between physical and social environment. Current zeitgeist in educational psychology and research in learning emphasize constructive learning processes and sociocultural approaches to learning, in which learning is understood as social in nature and teaching is seen as instructing processes, not simply transmitting knowledge (i.e. Bereiter, 2002).

Plucker, Beghetto, & Dow (2004) bring out the fact that our knowledge of creativity—and thinking and learning in general—has advanced over the past several decades, but our strategies for enhancing creativity have changed very little. Reforming school is a complex and slow process (Sahlberg, 2011). According to Sahlberg (2011), educational change in Finland has been successful within last 20 years: the use of resources in the school system is efficient and young people learn well. Can we still do more to regenerate competencies and working skills in the future knowledge society? Are creativity and collaboration truly emphasized in schools?

It is important to reflect on what kinds of ideas of learning, studying and knowledge underlie our theories and inventories (Lonka, Olkinuora, & Mäkinen, 2004). People have implicit theories on intelligence and creativity (Sternberg, 1985; Blackwell, Trzesniewski, & Dweck, 2007). Lonka, Joram, & Bryson (1996) refer to Sternberg (1985) and Bereiter & Scardamalia (1984) as they present that the beliefs and conceptions of learning and knowledge play an important role in, and provide a framework for, how people understand and explain phenomena such as school learning and intelligent behavior. In their article they conclude that: “it may be difficult to implement new innovations of teaching and learning in society if ordinary people do not share the views of experts who suggest the reforms” (Lonka et al., 1996: p. 241). Furthermore it is important to explore teachers’ conceptions of learning and creativity if we pursue to develop creativity fostering learning environments in schools.

The exploratory goal of the present study is to understand teachers’ epistemologies and conceptions of learning and creativity. It is important to look at the conceptions of teachers and future teachers, since they may have consequences in the classroom.

SAL (Students approaches to learning) tradition of research aims to describe and measure students’ epistemologies and conceptions of learning. MED NORD is an instrument developed within SAL framework (Nieminen, 2011) for measuring conceptions of learning, study orientations and wellbeing. MED NORD has been validated as an appropriate research instrument measuring students’ wellbeing and study orientations. (Lonka et al., 2008). For this study, parts of MED NORD was used to measure primary and secondary level teachers’ and teacher students’ conceptions of learning.

1.1. Theoretical Concepts in the Study

1.1.1. Learning

Learning is a complex phenomenon. The research in learning has shifted from looking at individuals who acquire knowledge and intelligence as stable towards highlighting the active, constructivist and collaborative aspects of learning. In sociocultural approaches to learning, it is seen as a part of social processes of knowledge construction mediated by cultural tools and norms (Muukkonen-van der Meer, 2011). Vygotsky’s zone of proximal development (Vygotsky, 1978) views learning as a social activity, problem solving with more capable
peers. Teacher’s role is to be a facilitator of this process.

Sfärð (1998) wrote about two metaphors of learning: acquisition metaphor and participation metaphor. Acquisition metaphor sees the mind as a container of knowledge. In the acquisition metaphor, learning is seen as a process that fills the container. According to Paavola, Lipponen, & Hakkarainen (2004), the acquisition metaphor has been a prominent one in the history of learning sciences. Participation metaphor views learning as participation in various cultural processes and shared learning activities. In the participation metaphor, knowledge is an aspect of participation in cultural practice, and learning is a matter of participation in practices and actions. In their article Paavola, Lipponen, & Hakkarainen (2004) present a third learning metaphor: the knowledge-creation metaphor. Knowledge creation metaphor is based on Nonaka & Takeuchi’s (1995) knowledge creation-model, Engeström’s (1999) model of expansive learning and Bereiter’s (2002) knowledge building. Knowledge-creation models conceptualize learning and knowledge advancement as collaborative processes. Learning is understood as a collaborative effort. In collaborative learning, individuals work towards a common objective aiming for shared knowledge construction in collaboration (i.e. Muukkonen-van der Meer, 2011).

In constructivist approaches to learning, learning is seen as active construction of knowledge, not passive registration of knowledge (Lonka, 1997). Teaching is not seen as transmitting information but rather fostering learning and promoting group processes (e.g. inquiry based learning, phenomenon-based learning) (Lonka et al. 2004). Wells & Arauz (2006) have explored that through collaboration it is possible for teachers to support active construction of students’ knowledge and to reduce the transferring of knowledge from teacher to student. According to Litmanen, Lonka, Inkinen, Lipponen & Hakkarainen (2012), activating, student-centered methods and collaborative learning processes contribute to active construction of knowledge and promote the learners’ autonomy and responsibility. Progressive inquiry learning (Lonka, Hakkarainen, & Sintonen, 2000) is based on student-activating instruction. It highlights the active role of the learner and encourages students’ own thinking. Through intensive collaboration and peer interaction, resources of the whole learning community may be used to facilitate advancement of inquiry.

Perry (1970) wrote about dualistic and relativistic conceptions of knowledge. He presented that dualistic conceptions of knowledge view knowledge as a set of clear, unchanging facts, as certain knowledge, which can be verified by authorities, whereas the relativistic conceptions of knowledge view knowledge as something that is created and evaluated in specific context and can be supported and criticized by presenting relevant evidence and arguments.

Marton & Säljö (1976a, 1976b) found two different ways of how the students approach their learning tasks: memorizing the text and rote learning are known as surface approach, as paying attention to the meaning, understanding comprehensible wholes and critical evaluation of the study material are known as deep approach. “Deep approach” and “surface approach” to learning are broadly used terminology in the research of learning (Nieminen, 2011). Previous study shows that surface approach tends to correlate with dualistic ideas of knowledge (Lonka, Sharafi, Karlgren, Masiello, Nieminen, Biergegård, & Josephson, 2008).

Metacognition is an important aspect in terms of student learning. Metacognition refers to the monitoring and control of cognition (Whitebread & Pino Pasternak, 2010). This means the activities that help the students to plan their learning and regulate or change it (Lonka et al., 2004). Metacognition is attached to self-regulated learning and self-regulated learning serves students’ learning motives in high quality of learning (Heikkilä, Niemivirta, Nieminen, & Lonka, 2011).

Lonka & Lindblom-Ylänne (1996) presented different aspects of studying that may lead to either superficial learning or deep-level learning. According to Lonka & Lindblom-Ylänne (1996) the approaches that were related to superficial learning are surface approach, reproduction of knowledge, teacher-regulated learning, passive epistemology, dualistic view, and intake of knowledge. Deep approach, transformation of knowledge, self-regulated learning, active epistemology, relativistic view and construction of knowledge were presented as approaches that may lead to deeper levels of learning (Lonka & Lindblom-Ylänne, 1996).

1.1.2. Creativity

Guilford’s (1950) speech for American Psychologist’s Association is often referred to as a starting point for contemporary creativity research (i.e. Sternberg & Lubart, 1999; Baer & Kaufman, 2006; Sawyer, 2012). In his speech, Guilford expressed his concern for the lack of creativity research in the first half of the 1900’s. Guilford demanded more attention and appreciation for creativity research. He pondered already in 1949: Why do education and creative action have so few correlations? Why does education system produce so few creative individuals? He asked two important questions: “How do we find creativity from our children, and how can we promote
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the development of creative personalities?" (Guilford, 1950). After Guilford’s comment, the interest in creativity research evolved and, since then, almost all significant psychologists have researched creativity, and what it means to be creative. (i.e. Sawyer, 2012; Beghetto & Kaufman, 2007).

After Guilford’s speech, psychological research in creativity focused on exploring the creative individual. Researchers were interested in personal traits and intelligence of creative individuals. The next stage in creativity research was the researchers’ growing interest in cognitive processes of creative thinking (Sawyer & DeZutter, 2009). In the 1980’s the researchers started to show interest in the social and cultural factors of an individual’s creativity. Theresa Amabile (1983) wrote that in creativity research it is not only important to investigate the personality and cognition of a creative individual, but also take the social context into consideration. Amabile (1983) stated that the research had concentrated too much on the individuals and their personality traits, leaving the creative situations and social context aside.

Amabile was not the only creativity researcher who questioned the individuality of research in creativity. Mihaly Csikszentmihalyi (1996) explored three elements of creativity: the creative domain, the creative field and the creative individual. Csikszentmihalyi’s model of creativity is known as a systems model of creativity. Creative domain means culture, symbolic rules and procedures as well as symbolic knowledge shared by a particular society or humanity as a whole. Creative field is the social community that acts in the domain, and the individuals (experts) who decide whether a new idea or product should be included in the domain. Csikszentmihalyi’s third element of creativity is the creative person, an individual who acts in the creative field, using the symbols of the creative domain. According to Csikszentmihalyi’s systems model of creativity, creativity is jointly constituted by the interaction among domain, field, and person. Creativity can be any act, idea or product that changes the existing domain or transforms existing domain into a new one. A personal trait of creativity is not what predicts creativity. Systems model recognizes the fact that creativity cannot be separated from its recognition. It is not enough to research the creative individual. Not any great man of history have created anything alone. Creativity is never only in the mind of a person, it must be recognized by the experts in the field and it has to be included in to the domain it belongs. Creativity is always an interaction between an individual’s thoughts and a sociocultural context (Csikszentmihalyi, 1996).

Creativity researchers often describe the distinction between Big-C creativity and little-c creativity (Beghetto & Kaufman, 2007). Big-C creativity highlights eminent creative contributions, the breakthrough creativity that changes the field. Little-c creativity emphasizes everyday creativity that may make a solid contribution. Beghetto & Kaufman (2007) brought in to creativity research the conception of “mini-c” that highlights the creative process, not creative product like Big-C and little-c.

1.1.3. Relations among Learning and Creativity

Sawyer & DeZutter (2009) assert a shift in creativity research, exploring the social and cultural dimensions of creativity in 1980’s and 1990’s, which was inspired by the similar shift in cognitive science—a shift in analysing the distributed cognition, distribution across people, tools, and environments. This was a shift from focusing on internal mental states and processes in both cognitive science and creativity research. Plucker, Beghetto, & Dow (2004) relate creativity to the sociocultural approaches of learning. In the sociocultural point of view social, interactional and collaborative processes are important for learning. Researchers (i.e. John-Steiner, 2000; Moran, 2010) connected collaborational creativity to Vygotsky’s (1978) thoughts about socio-cultural characteristics of learning. Moran (2010) states, Vygotsky saw educational development as two-way: the individual also produces and reproduces culture.

According to Plucker et al. (2004) creativity research can contribute to the social constructivist approaches to learning and teaching. Constructivism in a sense, emphasizes the aspects of restructuring knowledge in the process of learning, and overlaps with creativity.

The knowledge-creation metaphor (Paavola, Lipponen, & Hakkarainen, 2004) views learning as a shared problem-solving process. New ideas emerge between, rather than within, people. The knowledge-creation metaphor of learning is about advancing and creating new practices and knowledge, emphasizing the importance of going beyond the information given. Learning is seen as an equivalent to innovative processes of inquiry, where something new is created and the existing knowledge is either substantially enriched or significantly transformed during the process.

Bereiter’s (2002) knowledge building approach has been used extensively in educational institutions to guide students and teachers engaging in collaborative efforts to develop their thoughts and ideas (Bereiter, 2002).
Scardamalia & Bereiter (2006) present that authentic, creative knowledge work can take place in the classrooms. Knowledge building views learning as not only as process of advancing personal knowledge, but also as developing collective knowledge (Scardamalia & Bereiter, 2006). Progressive inquiry learning (Lonka, Hakkarainen, & Sintonen, 2000) highlights wondering and asking questions in the learning process. It views learning as meaningful play in which knowledge is reconstructed. Both knowledge building and progressive inquiry learning are collaborative, creative learning processes where knowledge is reconstructed.

In creativity research (Beghetto & Kaufman, 2007), the concept of mini-c creativity illustrates the relationship between learning and creativity. It highlights the creative process inherent in the development of learning, a dynamic, interpretive process of constructing new, personally meaningful insights and understandings.

Vera John-Steiner (2000) wrote that as the understanding on the functioning of the mind has grown, has it become clear that the productive ideas arise from common thinking (thinking together) and shared problems achieving new perspectives. As stated by Wells & Arauz (2006) successful collaboration in the learning process is very similar to collective creativity. Essential for both of them is critical dialogue, different perspectives and discussions, which all are generating something new.

2. Research Context

In Finland all the children complete the same 9-year comprehensive education. At the age of 7 children attend the 1st grade. Primary level is from 1st to 6th grade and after that a three-year upper secondary level, grades 7 to 9.

All the teachers in Finland must have a master’s degree in order to be a qualified teacher. Class teacher (primary level teachers, grades 1 - 6) education consists of three years of Bachelor’s and two years of Master’s studies in either educational sciences or educational psychology. Educational psychology as an alternative major is a teacher education program in University of Helsinki. The students study intensively in a small group for 3 years, applying progressive inquiry-based learning as one of their main approaches.

Subject teachers (upper secondary level, grades 7 - 9) usually have a master’s degree in a specific subject (mathematics, biology etc.) with compulsory additional studies in educational sciences. Special education teachers teach in both primary and secondary schools in grades 1 - 9, and they are required to have a master’s degree in educational sciences with the major subject being special education.

2.1. Aims of the Study

The aim of this study was to investigate, what kinds of conceptions do teachers and teacher students express of learning and creativity and to find out do teachers and student teachers think that there is a connection between learning and creativity.

2.2. Research Questions

The aim of the study was approached through the following research questions:

1) What kinds of conceptions of learning do teachers and student teachers express?
2) What kinds of conceptions of creativity do teachers and student teachers express?
3) Do teachers and student teachers see a connection between learning and creativity?

The intention of the present study was to pilot the measures with a group of active teachers in order to later construct structured items for looking at whether the results may be generalized. It was of interest to see, how open-ended and structured questions functioned.

3. Methods

In this study a mixed methods approach (i.e. Creswell & Plano Clark, 2011) was used as both qualitative and quantitative data was collected and analyzed. Mixed methods approach was chosen because with mixed methods research it is possible to get a better understanding of the research problems than with either quantitative or qualitative research alone (Creswell & Plano Clark, 2011).

3.1. Participants

The participants were 89 Finnish teachers and teacher students (female 77 and male 12) who answered an e-form questionnaire in May, June and July 2012.
Of the participants, 28% \((n = 25)\) were teacher students, 32% \((n = 28)\) were class-teachers in primary level of education (grades 1 to 6) and 27% \((n = 24)\) were subject teachers for upper secondary level (grades 7 - 9). Also there were special education teachers \((11\%, n = 10)\) and principals \((2\%, n = 2)\) in the respondents.

Majority of the participants \((71\%, n = 63)\) had obtained a Master’s degree. The rest of the participants were high school graduates completing their Bachelor’s degree \((15\%, n = 13)\) or Bachelors completing their Master’s degree \((12\%, n = 11)\) and one of the participants \((1\%, n = 1)\) had a PhD degree. One respondent had responded “other” to a question of educational background. Of the participants, 43% \((n = 38)\) majored in educational sciences, 23% \((n = 21)\) majored in educational psychology and 34% \((n = 30)\) had another major (subject or special education).

The participants had working experience as a teacher from less than a year \((27\%, n = 24)\) to 32 years \((2\%, n = 2)\). Mean of the working experience as a teacher was 9 years. Age of the participants was from 20 to 54, mean being 38 years.

3.2. Materials

The data were collected by a web-based e-form questionnaire. Link to e-form was shared via Facebook and Twitter to the friends of Kirsti Lonka and a Facebook group of educational psychology students and sent by e-mail to mailing lists containing teacher students and teachers in profession during May, June and July 2012. The questionnaire took approximately 20 minutes to complete.

The following background variables were collected: gender, education, major subject, minor subjects, current job, year of birth, graduation year, working experience as a teacher, working experience at current job and current workplace.

In the first part of the questionnaire there were three open-ended questions to explore the conceptions of learning and creativity and the connection between them:

1) Give your own subjective definition of learning.
2) Give your own subjective definition of creativity.
3) Do you see a connection between learning and creativity? If you do, what kind of a connection is it?

The open-ended questions were modified from Lonka, Joram, & Bryson’s (1996) research on conceptions of learning. Open-ended questions were quite general in nature, with the intention to find out how participants spontaneously define learning and creativity and not leading the subjects toward “acceptable” answers. They were also situated in the first part of the questionnaire, before the Likert-type statements, so that the statements would not lead respondents toward “acceptable” answers.

In the second part, there were 10 one-part Likert-type statements (self-report items) measuring respondents’ mindset (Dweck, 2008). The 5 statements measuring optimism and lack of interest based on the MED NORD questionnaire (Lonka et al., 2008). Mindset, optimism and lack of interest were, however, left out of the eventual analysis and results.

The third part of the questionnaire consisted of 23 two-part Likert-type statements based on the MED NORD questionnaire (Lonka et al., 2008) measuring epistemologies: reflective learning, collaborative knowledge building, valuing metacognition, certain knowledge and deep and surface approach to learning. In the two-part statements, statement A explored the conceptions (“Knowing one’s own thinking is the major contributor to successful learning”). Statement B concerned the utilization of the statement A conceptions in a real life classroom environment (“I use multiple methods to enhance this particular skill.”) This methodology was adapted on the basis of Nieminen (2011). Participants rated all the statements on a six-point Likert-type scales. Scale 1 to 6 (1 = totally disagree, 2 = disagree, 3 = partially disagree, 4 = partially agree, 5 = agree, 6 = totally agree). The higher the score, the more the epistemology in question was valued (i.e. reflection, surface approach).

3.3. Methods and Procedures

The analyses were carried out by using a mixed method approach (Creswell et al., 2011), analysing qualitatively described conceptions of learning and creativity and quantitatively assessed epistemologies that the participants expressed.

3.3.1. Content Analysis of Open-Ended Questions

The open-ended questions were analysed by using a qualitative analysis coding the answers into different scales
and categories (Creswell & Plano Clark, 2011) adopted from the previous research (Lonka, Joram, & Bryson, 1996). In addition, new data-driven categories were constructed especially for the questions concerning collaborativity of learning and for the questions concerning creativity.

The answers of the first open-ended question (Give your own subjective definition of learning.) were scored on two scales adopted from Lonka, Joram, & Bryson’s (1996) research in conceptions of learning. Lonka et al., (1996) defined constructivity and active epistemology as the two core conceptions of learning. At the one end of the continuum of constructivity, learning is seen as accumulation of new information in memory and at the other end as a constructive process that involves qualitative restructuring and modification of mental models. At the one end of the continuum of active epistemology the learners are seen as active, intentional actors who are responsible for their own learning, at the other end of the continuum the learners are seen as objects who passively receive what is taught by a teacher. The data-driven category of collaborativity was based on the current zeitgeist of educational psychology that highlights group processes of learning and collaborative knowledge building (e.g. Bereiter, 2002; Hakkarainen, Lonka, & Lipponen, 2004). The answers were categorized by analysing if they expressed conceptions of learning as individual process or as a collaborative act.

Answers for the second open-ended question (Give your own subjective definition of creativity.) were analysed based on the creativity research (e.g. Sawyer, 2012). The answers were categorized into data-driven categories by evaluating if the answers expressed respondents’ conceptions of creativity as innate ability or something that is possible for anybody, creative product (Big-C-creativity) or creative process, and individual or collaborative creativity.

The third open-ended question (Do you see a connection between learning and creativity? If you do, what kind of a connection is it?) answers were coded into three categories based on whether they reported the connection of learning and creativity not existing, possibly existing or definitely existing.

3.3.2. Analysis of the Structured Questions
The quantitative analysis was performed using Statistical Package for the Social Sciences (SPSS version 21). The multiple items measures were calculated for MED NORD statements. Cronbach’s coefficient alpha was used for measuring internal consistency of the multiple items measures. According to Richardson (2004), any values below .6 are regarded as poor. The only Cronbach’s Alpha below .6 was Reflective learning A (see Table 8).

The normality of the variables were observed graphically by histograms and by the skewness and kurtosis of the variables. Reflective learning A, collaborativity A + B and deep approach A + B were nonnormally distributed so nonparametric tests were used for analysis. Also the constructivity of learning and active epistemology were nonnormally distributed but they were “borderline cases” so both parametric and nonparametric tests were used for analysis. The Spearman correlation is a nonparametric test for correlations. It gives the same result as the parametric Pearson correlation with normally distributed variables, so all the correlations are Spearman’s correlations.

4. Results
The results show that learning was viewed as assimilation (see Table 1). The mean of constructivity of learning was 1.868 and standard deviation .745. The most typical answers were categories 1 and 2.

Table 2 shows that learner’s role in a learning process was most often seen as implicitly passive. The mean of active epistemology was 2.318 and standard deviation .838.

Table 3 shows that the most typical expressions reflected the view of learning as both individual and collaborative act. The mean of collaborativity of learning was 1.898 and standard deviation .588.

Table 4 shows that creativity was seen as an ability that can be improved. Mean was 2.0, standard deviation .456 and mode 2. Scale 1 - 3 ranged 1 - 3.

The respondents highlighted the creative process, not a creative product (see Table 5). Mean was 2.6, standard deviation .542 and mode 2.

Creativity was typically seen as individual (see Table 6). Mean was 1.256, standard deviation .499 and mode 1. Scale 1 - 3 ranged 1 - 3.

Table 7 shows that majority of the participants saw a connection between learning and creativity. Mean was 2.356, standard deviation .568.
### Table 1. Constructivity.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Storing existing knowledge: Learning is seen as absorption, intake of knowledge, or simply storing “Learning is acquiring new information.”</td>
<td>29 (35%)</td>
</tr>
<tr>
<td>2) Assimilation: Learning is viewed as assimilating new knowledge into a pre-existing framework or interpreting knowledge within an existing framework. “Learning is intaking new information that transforms and expands existing structures of knowledge.”</td>
<td>36 (43%)</td>
</tr>
<tr>
<td>3) Change or reorganization takes place: Learning is seen as changing thinking or reorganizing knowledge; Learning is an interplay between assimilation and accommodation. “Learning is understanding, observing and acquiring new information connecting things and acting in new ways.”</td>
<td>18 (22%)</td>
</tr>
<tr>
<td>4) Construction of new knowledge: Learning is seen as changing/reorganizing plus constructing new knowledge, knowledge structures, or new ideas.</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

### Table 2. Active epistemology.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Learner viewed as object of education: Learning is absorption of information; To learn is to be taught. “Learning is opening a particular thought to a pupil.”</td>
<td>11 (13%)</td>
</tr>
<tr>
<td>2) Learner seen as implicitly passive: Learning is acquisition of information; A changes occurs. “Absorbing knowledge or ability that affects actions or thinking of the individual.”</td>
<td>48 (54%)</td>
</tr>
<tr>
<td>3) Learner seen as implicitly active: An active verb is used to describe learning, e.g. “learning is using mental abilities”; Learning viewed as problem solving or as discovery. “Learning is an ability to process new things…”</td>
<td>19 (22%)</td>
</tr>
<tr>
<td>4) Learner emphasized as being active: Learning explicitly described as an active process. “Learning is active improving of a person’s own skills and knowledge.”</td>
<td>10 (11%)</td>
</tr>
</tbody>
</table>

### Table 3. Collaborativity.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Learning is an individual process “Learning mostly happens within a learner’s head.”</td>
<td>20 (23%)</td>
</tr>
<tr>
<td>2) Learning can be individual or collaborational: Answers don’t highlight either individualistic or collaborative learning. “At its best, learning is cooperative.”</td>
<td>57 (65%)</td>
</tr>
<tr>
<td>3) Learning is seen as a collaborational process: “Learning is a process that happens in interaction between other people and environment.”</td>
<td>11 (12%)</td>
</tr>
</tbody>
</table>

### Table 4. Creativity seen as innate ability or something that is possible to anybody.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Innate ability “Creativity is an inborn ability.”</td>
<td>8 (10%)</td>
</tr>
<tr>
<td>2) Needs a lot of time, exercise or talent “Creativity is an ability that is linked to freedom and intelligence.”, “Creativity needs time.”</td>
<td>62 (80%)</td>
</tr>
<tr>
<td>3) Everybody is creative “There is creativity in everybody.”</td>
<td>8 (10%)</td>
</tr>
</tbody>
</table>

### Table 5. Creativity seen as a product or process.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
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<tbody>
<tr>
<td>1) Big C creativity, a meaningful, new product no one has ever before invented. “Creativity is an ability to envisage and create something new.”</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>2) Respondent’s focus not clearly in product or process “Innovative thinking and inventing new things.”</td>
<td>28 (35%)</td>
</tr>
<tr>
<td>3) Process, an everyday problem solving process “Creativity means using one’s knowledge or skills in a way that is new either to the individual or to the community. Problem solving is closely attached to creativity.”</td>
<td>50 (62%)</td>
</tr>
</tbody>
</table>

Table 8 shows the means, standard deviations, scales, ranges and Cronbach’s Alphas of the multiple item measures calculated MED NORD statements. The means of reflective learning, collaborative knowledge build-
Table 6. Creativity seen as individual or collaborational.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Individual “Creativity is expressing and seeking oneself.”</td>
<td>60 (76%)</td>
</tr>
<tr>
<td>2) Individual, based on culture history/sociocultural process “Creative individual never invents things just out of nothing but builds on already existing knowledge and experiences. Creativity can also be taking a new perspective and seeing something that has never been seen in a culture before.”</td>
<td>17 (21%)</td>
</tr>
<tr>
<td>3) Collaborative “Creativity is well achieved in groups.”</td>
<td>2 (3%)</td>
</tr>
</tbody>
</table>

Table 7. Connection of learning and creativity.

<table>
<thead>
<tr>
<th>Categories with example answers</th>
<th>f (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) No connection “I think creativity is something that already exists. Learning comes from outside.”</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>2) Might sometimes be a connection in certain conditions “Creativity can be taken advantage of in learning. For example, teacher may be creative when planning the methods or learners can be creative when constructing their own learning.”</td>
<td>52 (60%)</td>
</tr>
<tr>
<td>3) Definitely a connection. Learning is a creative process and creativity is a learning process. “Creativity as well as learning is a problem solving process. Creative process is always also a learning process.”</td>
<td>33 (38%)</td>
</tr>
</tbody>
</table>

Table 8. The descriptive statistics and Cronbach’s alphas of the multiple item measures.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Scale</th>
<th>Range</th>
<th>α</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflective learning A</td>
<td>5.31</td>
<td>0.55</td>
<td>1 - 6</td>
<td>3.67 - 6</td>
<td>.56</td>
<td>87</td>
</tr>
<tr>
<td>Reflective learning B</td>
<td>4.56</td>
<td>0.75</td>
<td>1 - 6</td>
<td>3 - 6</td>
<td>.66</td>
<td>86</td>
</tr>
<tr>
<td>Collaborative knowledge building A</td>
<td>5.60</td>
<td>0.45</td>
<td>1 - 6</td>
<td>4.5 - 6</td>
<td>.81</td>
<td>86</td>
</tr>
<tr>
<td>Collaborative knowledge building B</td>
<td>4.98</td>
<td>0.76</td>
<td>1 - 6</td>
<td>2.5 - 6</td>
<td>.86</td>
<td>88</td>
</tr>
<tr>
<td>Valuing metacognition A</td>
<td>5.22</td>
<td>0.68</td>
<td>1 - 6</td>
<td>3.5 - 6</td>
<td>.79</td>
<td>88</td>
</tr>
<tr>
<td>Valuing metacognition B</td>
<td>4.45</td>
<td>0.95</td>
<td>1 - 6</td>
<td>2 - 6</td>
<td>.83</td>
<td>87</td>
</tr>
<tr>
<td>Certain knowledge A</td>
<td>2.97</td>
<td>1.02</td>
<td>1 - 6</td>
<td>1 - 5.67</td>
<td>.80</td>
<td>88</td>
</tr>
<tr>
<td>Certain knowledge B</td>
<td>2.96</td>
<td>0.97</td>
<td>1 - 6</td>
<td>1 - 5</td>
<td>.74</td>
<td>87</td>
</tr>
<tr>
<td>Deep approach A</td>
<td>5.28</td>
<td>0.59</td>
<td>1 - 6</td>
<td>2.5 - 6</td>
<td>.83</td>
<td>85</td>
</tr>
<tr>
<td>Deep approach B</td>
<td>4.93</td>
<td>0.72</td>
<td>1 - 6</td>
<td>2.67 - 6</td>
<td>.86</td>
<td>86</td>
</tr>
<tr>
<td>Surface approach A</td>
<td>2.98</td>
<td>0.86</td>
<td>1 - 6</td>
<td>1.2 - 5.4</td>
<td>.69</td>
<td>84</td>
</tr>
<tr>
<td>Surface approach B</td>
<td>2.97</td>
<td>0.84</td>
<td>1 - 6</td>
<td>1.2 - 5.2</td>
<td>.77</td>
<td>83</td>
</tr>
</tbody>
</table>

ing, valuing metacognition and deep approach were very high (approximately 5 - 6, scale being 1 - 6), which reports ceiling effect. Surface approach (A + B) and certain knowledge (A + B) ranged approximately 1 - 5, mean being approximately 3. The statement B had better validity (Cronbach’s alpha) in all the variables, except the certain knowledge. The B-parts of the statements also had less ceiling effect so they were used in the final analysis.

Table 9 shows Spearman’s correlations between the conceptions of learning (constructivity and active epistemology) and MED NORD epistemologies.

The constructivity and active epistemology of learning correlated positively with valuing metacognition. They also significantly correlated with each other (Spearman correlation .510).

Table 10 shows Spearman’s correlations between MED NORD statements. Reflective learning, collaborative knowledge building, valuing metacognition and deep approach were related. Surface approach and certain knowledge were related.

5. Discussion

The aim of this study was to explore teachers’ and teacher students’ conceptions of learning and creativity and the interrelations of these conceptions. Further, it was of interest whether there were any indications of collaboration in the definitions of learning and creativity.

The participants’ conceptions of learning were not very constructivistic as they viewed learning as assimi-
Table 9. Spearman’s correlations between constructivity, active epistemology and MED NORD and mindset.

<table>
<thead>
<tr>
<th></th>
<th>Constructivity</th>
<th>Active epistemology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflective learning B</td>
<td>.080</td>
<td>.137</td>
</tr>
<tr>
<td>Collaborative knowledge building B</td>
<td>.186</td>
<td>.161</td>
</tr>
<tr>
<td>Valuing metacognition B</td>
<td>.344**</td>
<td>.272*</td>
</tr>
<tr>
<td>Certain knowledge B</td>
<td>-.218</td>
<td>-.202</td>
</tr>
<tr>
<td>Deep approach B</td>
<td>.154</td>
<td>.153</td>
</tr>
<tr>
<td>Surface approach B</td>
<td>-.040</td>
<td>-.050</td>
</tr>
</tbody>
</table>

Note: *p < .05 (2-tailed), **p < .01 (2-tailed).

Table 10. Spearman’s correlations between MED NORD statements.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Reflective learning B</td>
<td>-.134</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Collaborative knowledge building B</td>
<td>-.261*</td>
<td>.646**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Valuing metacognition B</td>
<td>-.211</td>
<td>.523**</td>
<td>.484**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Certain knowledge B</td>
<td>.287**</td>
<td>-.085</td>
<td>-.022</td>
<td>-.180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Deep approach B</td>
<td>-.234*</td>
<td>.709**</td>
<td>.492**</td>
<td>.427**</td>
<td>-.128</td>
<td></td>
</tr>
<tr>
<td>6) Surface approach B</td>
<td>.270*</td>
<td>-.011</td>
<td>-.035</td>
<td>.015</td>
<td>.483**</td>
<td>.050</td>
</tr>
</tbody>
</table>

Note: *p < .05 (2-tailed), **p < .01 (2-tailed).

Lating new knowledge into a pre-existing framework or interpreting knowledge within an existing framework (Lonka, Joram, & Bryson, 1996). In the answers of open-ended questions no one viewed learning as construction of new knowledge. The learner was most often seen as implicitly passive. Neither individuality nor collaboration of learning were emphasized in the answers of the open-ended questions.

Conceptions of creativity viewed creativity as an ability that is not innate, but needs time or exercise to develop. The respondents’ focus was in a creative process, not creative product. Creativity was viewed individual as there were indications of collaboration only in two respondents’ definitions of creativity. The respondents typically saw a connection between learning and creativity.

Reflective learning, collaborative knowledge building, valuing metacognition and deep approach were all reported very high. Positive correlation between constructivity, active epistemology, valuing metacognition stresses high quality of learning (Heikkilä et al., 2011) and deep-level learning (Lonka & Lindblom-Ylänne, 1996). Positive correlation between reflective learning, valuing metacognition, deep approach and collaborative knowledge building refer to high quality of learning and deep-level learning. Certain knowledge and surface approach, which are approaches that may, according to Lonka & Lindblom-Ylänne (1996), lead to superficial learning, were quite low on average level, as the mean of both of them was approximately 3 (scale 1 - 6).

5.1. Methodological Reflections

The present study was conducted as a mixed method study by triangulating qualitative and quantitative data. The results from open-ended questions were quite different as compared to MED NORD-statements. The open-ended questions came first so that the statements would not lead subjects towards “acceptable” answers.

The population in this study was selected because they were professional, enlightened teachers and teacher students, who were especially active as they answered an e-form shared via professor Kirsti Lonka’s Twitter account and specific e-mail lists for teacher students and teachers. Due to the background of the population, it was expected that the MED NORD conceptions had ceiling effect in high quality learning approaches (Lonka et al., 1996). In this study, the B statements of MED NORD items were pointed to practice, to a real-life work environment. This methodology was adopted from Juha Nieminen (2011) as his study showed better reliability and validity with less ceiling effect when the conceptions were asked in a real life professional context. The difference between A and B statements validity and reliability supports that assumption.

There may be distinctions between reported beliefs and behavior (Lonka, Joram, & Bryson, 1996). Despite of that, Lonka, Joram, & Bryson, 1996 emphasize the importance of the study of belief systems, as they may play an important role in mediating behavior. There was a mismatch between the answers of open-ended questions
and structured items. The categories of open-ended questions were much less socially desirable than the reactions given to structured items.

5.2. General Conclusions and Future Research

According to Lonka, Joram, & Bryson (1996), teachers’ knowledge may be atheoretical in nature and they may be blind to features in their practice that bear significantly on students’ learning. Therefore Lonka, Joram & Bryson expected that teachers’ conceptions of learning would not necessarily be very constructive. That might explain the results showing that the majority of the participants defined learning as assimilation of knowledge. The learner was most often seen as implicitly passive which highlighted teacher-regulated learning that may lead to superficial learning (Lonka & Joram Bryson, 1996; Lonka & Lindblom-Ylänne, 1996). It may be that teachers do not see individuality or collaborativity central in definition of learning, as they mostly did not refer to either individual or collaborative nature of learning in their answers. New categories also emerged and they provided new insights about how teachers and future teachers saw connections between learning and creativity.

The results show that teachers and teacher students saw creativity as an ability that can be improved, both product- and process-oriented, and individual. Creativity seen as an ability that can be improved with time or exercise, reflected a growth mindset (Dweck, 2008) which might be promising for developing creativity in schools. The fact that collaboration was not accentuated in neither learning nor creativity may be a roadblock for fostering creativity in schools. Also the conceptions of learning as assimilation and learners viewed as implicitly passive, may be an obstacle for creative collaboration in classrooms and schools. If teachers would see learning as a creative act and the role of learner as active, they might be more likely to foster creativity in the classroom. Hargreaves (1999) wrote about knowledge-creating school as an answer to the challenges of knowledge society. He asserted a demand that teachers and headmasters of the schools need to become creators of professional knowledge in order to help students to develop skills and competencies needed for knowledge-creation. It would be fruitful to do an intervention of educating teachers and headmasters to collaborative knowledge-creation processes (e.g. progressive inquiry learning) to increase collaboration and creativity in the classrooms.

Plucker, Beghetto, & Dow (2004) ask in their article, why creativity hasn’t been a more important research subject in educational psychology even though it has so much to give for educational psychology. Moran (2010) lists benefits of creativity that have been proposed for educational outcomes: Creativity increases student engagement and achievement and stresses student activity. It provides synergy and cross-fertilization among ideas, subject areas, and skills, which improve adaptability. Creativity also provides support for metacognition (Moran, 2010). According to Amabile (1983), creativity merges intrinsic motivation, domain-relevant knowledge and abilities, creativity-relevant skills (Amabile, 1983). According to Kaufman & Beghetto, (2009): “A broader conception of creativity will go a long way towards helping educators recognize and support creativity in schools and classrooms. Creativity is associated with high levels of interest, enjoyment and curiosity.”

Sawyer & DeZutter (2009) researched collaborative creativity in improvisation theatre groups. They executed a real-time interaction analysis of distributed creativity in action. Real-time analysis of creativity in schools would be very productive in researching collaborative learning processes. Future research should concentrate on the real-world interaction in the classrooms shedding light on whether the learning processes can be creative processes. It may also be interesting to see, how conceptions of learning and creativity may affect the ways teachers act in their classrooms.

Acknowledgements

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References


The Acting in Group of Teachers as Possibility of Resignification of the Interpretation about the Writing Language

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Abstract

Front of the possibility of acting with the teachers who teach in schools of Early Childhood Education for children aged six years, about the re-siginification of the understanding of writing language and of the importance of the child in this age group establish a positive relationship with this mode of language, was developed in 2011, a project linked to the Teaching of UNESP titled “Depathologization learning of the writing and inclusive education: reflections and actions of the teacher of Early Childhood Education”. This project aims to identification of the actions, in the classroom, of the patologization and subsequent implementation of actions depathologization writing by teachers’ actions, considering the increasingly early systematization of formal education of this kind of language in kindergarten. To this end, procedures that characterize the collaborative methodology are adopted. Throughout the methodological course, the engagement of the teachers, of the coordination and of the direction was valued, which seemed to favor both the formation, as the maintenance of the group, were very important aspects to ensure the interaction between its members and the common interest in the reflection about the topic in question. This paper focuses attention on whether thematic axes highlight during the initial survey of the expectations of teachers subsequently addressed in theoretical and reflective meetings leading up to identification of actions the patologization and/or of the proposition of the actions despatalizadoras of the learning of the writing, and in what refers to the way they are addressed.

Keywords

The Acting in Group, Teacher Formation, The Writing Language

1. Introduction

In 2011, the extension project “Depathologization learning of the writing and inclusive education: reflections and actions of the teacher of Early Childhood Education” was developed at the Nucleus for Teaching College of Sciences—FFC/UNESP, Marilia-SP-Brazil. The idea was develop, with the collaboration of teachers from kindergarten, reflections and actions of depathologization of the writing, so that the child of this age could experience a positive relationship with this type of language.

To this end, procedures that characterize the collaborative methodology were adopted: 1) Outline the expectations and needs of the participants, which included a personal interview, pre realization of the proposed activities, and a forum for discussion, guided by a previously prepared script used to identify aspects about writing that mobilized participants. In this condition, these aspects were understood as an initial reference for discussions subsequent triggered; 2) Theoretical-reflective meetings, conducted fortnightly and of the systematic form, used as possibility of obtaining data supplied by the teachers about the pedagogical discourse that directed the daily practics, with regard to the practice of pathologizing and/or of depathologization writing, since the value of this speech was considered relevant because they believed that, from the reflection on it was that the teacher would be able to envision the possibilities for modification of these practices, if deemed necessary; 3) Collaborative Intervention, held fortnightly, through which assumed relevance previously identified and defined daily practices as those directed to depathologization of literacy, and so permeated by motivational aspects, teaching relationships, classroom, recovery the self-esteem of the teacher and of the student, integrated collective action to school projects, textual analysis activities, training support group, among others; and 4) Analysis and dissemination of results through an interview, after completion of the activities, and other discussion forum, so as to enable the collective analysis of the results and the systematization of the reflective process of autonomous and collaborative intervention and emancipatory on the part of those involved, such as providing for the use of the collaborative approach.

The investment in the teacher-researcher relationship, from the perspective that there is no more important work than the other, but that both, with their knowledge and experiences can jointly contribute to the understanding of each other, as the writing language, as subsidized by the idea that:

“[...] The process of building relations and interactions that shape the story of a group, always singular, affects the particular history and the building not only the language but also—through it—in the constitution of the identity of each member of this group [...] in the sociolinguistic interactions relate to the positions and social roles assumed and performed in various social groupings in which the subject is inserted.”


The group was guided by the idea postulated by (Nemirovsky, 2002: p. 101) that “[...] as the teacher shows a genuine interest and enthusiasm for working on something in particular, will be promoting this attitude also may prevail, at least among most members of the group”. Therefore, throughout the journey undertaken by the actions contemplated by the project in question was valued the engagement of the teachers, coordination and direction, which seemed to encourage the formation and maintenance of the group, essential aspects to ensure interaction among its members and the common interest in the discussion about the topic in question (Zimerman, 1997; Panhoca, 2002).

Due to the diversity of actions developed through this project was particularized, in this text, the actions that originated for the thematic axes highlighted during the initial survey of the expectations of teachers subsequently addressed in theoretical and reflective meetings leading up to identification of actions of pathologization and/or the proposition of des-pathologization actions of literacy, and in regard to how they were addressed, namely: 1) literacy, literacy and schooling, Orality and literacy; 2) Relationship; 3) Design of the errors present in writing; 4) Production of texts and genres; and 5) The teacher’s role as a mediator in the process of appropriation of the formal writing.

2. Axis 1: Literacy, Initial Reading Instruction and Schooling

During the interview pre-activities, and forum for initial discussion, the teachers generally had difficulties in discussing the concepts of writing language, literacy, initial reading instruction and schooling, having prevailed among such teachers the use these expressions in the condition synonyms, a situation that triggered the study of these concepts in theoretical and reflective meetings undertaken.
Marcuschi (2001: p. 21) argues that the term “literacy” should be used in the plural, because of the numerous and different literacy practices. Thus, the condition of literate entails effective participation in the literacy situations and not just the use of formal writing.

Correa (2000: p. 140) emphasizes, however, that the conception of literacy should go beyond this idea of varying degrees of a minimal type to a maximum. According to this author, this idea, although it represented a breakthrough in the understanding of issues related to initial reading instruction, the literacy presupposes the application.

Marcuschi (2001: p. 22) also emphasizes the importance of distinguishing literacy, initial reading instruction and schooling. Literacy is understood by him as a situation that does not necessarily have to occur in schools, but suppose subjected to teaching learning and mastery of the skills of reading and writing, while schooling is characterized as “[...] formal and institutional practice of teaching aimed at a full student education, and initial reading instruction is just one of the tasks/activities of the school.”

Tfouni (1997) also proposes the distinction between literacy, initial reading instruction and schooling. Literacy is situated, by this author, on the social level, since it refers to the socio-historical aspects of the appropriation of writing. Initial reading instruction characterizes the individual level (domain skills of reading and writing). Schooling, in turn, is linked to the formal instructional and teaching that takes place within the school. The confusion between such terms, also pointed out by other researchers, is considered by this author as a difficulty in understanding literacy, since this confusion commonly relates to the use of these terms as equivalent.

3. Axis 2: Relationship between Orality and Writing

The fact to have prevailed among teachers ideas that writing is orality and/or that only serves as a communication tool, rather than recovery of the conditions of use of writing, modes of production, seconded only by a few participants, instigated the discussion of concepts about writing language and its relationship to orality.

According to Marcuschi (2001), the idea that writing is orality can be justified by the predominance of grammatical view of writing as a direct representation of speech or the overlap of oral language in relation to writing, which gives for the writing a place secondary. Such a view, according to this author, does not seek to clarify the similarities and differences between orality and literacy and is justified, therefore, by considering the derivative of speech writing.

About it, this author points out that the supremacy of orality over writing occurs only on the chronological aspect, in relation to the time of emergence of both, which does not give the most prestigious for orality. Instead, the author emphasizes that, when considering the use of writing, can acquire greater than that allocated to the oral social value. This will depend on the context of use of these modalities of language, whose relationship must be understood in a continuum, because of the constant dynamic between them.

This author also distinguishes two dimensions in the treatment of spoken and writing language: the first would be the size of the social practices that involve oral and (s) literacy(s). The second, on the modalities of language use, include speech and writing. Thus, orality and literacy understand aspects broader than speaking and writing relationships, implying orality as a result of interactive social practice, based on various forms of oral discourse, and literacy as various social practices based on the use of writing.

For Marcuschi (2001: pp. 25-26), the speech turn “[...] production would be a way for text-discourse communicative purposes the oral mode (located in the plane of the oral)” while writing “[...] a mode of textual-discursive production for communicative purposes [...]” and is characterized by its graphical constitution, though, also involves resources and other pictorial order”, which would place in terms of literacies. It is much more process than product. Thus, writing can not be understood as a representation of orality, simply because she does not play varied phenomena of orality as prosody, gestures and body movements and gaze. Likewise, orality does not reproduce aspects of writing, such as size and font, colors and formats, among others. Both have their own characteristics, but these characteristics do not give them a position opposing or dichotomous linguistic systems.

Koch (2000) seems to agree with those statements, to also maintain that both the oral and the writing one feature characteristics, although both use the same linguistic system. According to the author, what happens is that there are situations in which the writing text is closer to the colloquial and situations in which the spoken text is closer to formal writing speech. We observe, therefore, that, to this author, the relationship between orality and writing is also determined by the different contexts of use of both.
Tfouni (1997) argues that writing and orality are not in a relationship of dependence but interdependence, which determines the interplay between them, seems to reinforce that both should not be understood from the perspective of the dichotomy. However, according to this author, this relationship is conditioned by the position taken by the subject and author, who can now be given toward the oral to the writing, sometimes in the direction of writing to oral, depending on the context of use.

Koch (2000) also emphasizes the ability to be designed writing erroneously into an ideal pattern which speech departs. This fact, according to this author, may be justified by the fact that speech is often analyzed based on grammar designed for writing, which demands a jaundiced view of speech. This assumption can also strengthen the position of these two teachers (P1 and P15), which answers that left implicit.

Geraldi (1996), in this respect, believes that this need to search for cultural norms and prestige of orality stems from the what he calls “regulation of speech”, a consequence of a process of election of the prestigious standard determined politically and economically (the example the discussion in the introduction to this study).

For this author, the school is in a public forum in which the use of cultural norms are taught and required, from an idea of homogeneous and static language, ie the language understood only as code and the cultural norms as more adequate linguistic variety. This idea of understanding linked to the representation of a linguistic variety judged most suitable language may have contributed to the understanding of the teachers participating in this study, as the appropriation process of writing reduced to the appropriation of standard-educated variety, which implies stigmatizing way of speaking of their students and, indirectly, how to write well.

Franchi (1992) states that the distance between the student's way of speaking and cultured considered the norm is usually transformed into a problem, commonly located in the student, which contributes to the stigmatization of linguistic varieties, fleeing the cultured variety, occur and become standard. This author, as Geraldi (1996), does not disregard the importance of the role of schools in teaching cultural norms. Both point to the need for the school to prevent discrimination of linguistic varieties considered less prestigious, rather than mandatory replacement of these varieties by the use of cultural norms.

Likewise, also, pay attention to the importance of the teacher in the ownership of the writing process, because it should reflect more about the similarities and differences between orality and writing and prevent prejudice and discrimination from both their way of speaking students talk about the interference of this writing. These authors also consider that a conception of writing that this is not only understood as code or acquires a higher value to the speech, but understand that both relate to the circumstances in their uses, among other factors, will enable teacher to assist students not only in appropriating the orthographic conventions, but mainly in the settlement of the conflicts that such use may result, without, however, transform these conventions in the only acceptable and correctly (Franchi, 1992; Geraldi, 1996). Based on these assumptions, it is possible to admit that both the oral and the writing one has specificities that are distinct in terms of the language that influence each other, and understanding of such crucial specifics to combat the idea of writing as a representation of speech.

4. Axis 3: Errors Present in Writing: Problems or Solutions?

Invariably, teachers referred to the errors present in graphic productions of his students in the beginning the formal process of appropriation of writing, as symptoms of diseases. Under such an understanding, show excessive concern with the issue of diagnosis of learning difficulties of writing they have identified in their students. This situation then sparked deepening of the theoretical-reflective meetings, the study on the understanding of the nature of these errors.

Abaurre, Fiad, & Mayrink-Sabinson (2001c) argue that the so-called “errors” present in the writing production of the student, especially early grades, are actually clues that reveal the route of the student in the appropriation process of writing a since these signs are characterized by situations of conflict experienced by him.

These indications, as explained by Abaurre (2001a), translated into signals of constant reworking activities marking its provisional character. For this author, such evidence also reveal the differences experienced by the subjects, as the learning of writing, these differences determined by the particular history of each subject with language. Nevertheless, the criteria used by the child are not always understood by the adult, which may involve the characterization of the evidence preparation and reworking, in the text, as errors. So, according to what this author says, we can consider that this evidence, interpreted as errors can give rise to the establishment of a situation considered pathological when, in fact, she is absolutely positive and desired.

The occurrences of such evidence, trademarks present in the students’ texts reveal, exactly, the ability of reflection mentioned by the authors, which agrees with Silva (1991). This author asserts that such evidence-marks
indicate such capacity, characterize the performance of the child on writing and do not represent in any way, a pathological manifestation.

This position is also reinforced by Possenti (2002), who emphasizes that when such errors do not exceed the field of linguistic variation and practice of writing and are therefore not diseases.

About this question, Berberian (2003) highlights the importance of the criteria used in assessment situations writing production. This author justifies his concern when using the assumption that the conception of writing that prioritizes the grammatical aspects is which constitutes the most important factor for the transformation of different occurrences of the official spelling errors and, consequently, in pathologies. Thus, in addition to the child's experience with different contexts of use of writing, the possibility of performing speculations about possible questions you may submit writing on the representation of particular relevance in establishing his identity as author and reader.

The concern of these authors may refer to what Luria (1988) proposes, as to which the act of writing precedes their understanding and therefore the domain of ability to write not involves an understanding of writing. Thus, one can understand that the student is at the beginning of formal contact with the writing should be able to experiment with different possibilities about these occurrences.

Thus, the inability to be institutionalized, because of the evidence that the learner has not yet appropriated the orthographic conventions, and instituting a diagnosis of learning disabilities or reading and writing certainly departs from this understanding of learner the function of writing. This is due to the mechanistic and reductionist conception of writing language contributes to the school to continue assigning responsibility for that failure in the student. This, in turn, follows their school career enhancing such responsibility to the point of considering incapable as author-reader-interlocutor.

Abaurre (2001b) states that the solutions that the child seeks to interpret such an occurrence are subject often to local solutions, which will not necessarily be systematized, which requires the greatest teacher concern about the conditions of production of the text, which can to explicit the criteria used by the child in the search for solutions to your questions in relation to writing.

5. Axis 4: Production of Texts and Textual Genres

Based in the critical to procedures used for the production and interpretation of text that are based in the letter, in the syllable in the word or the phrase, since such procedures differ from the discursive competence of the student, i.e., the responsibility for the production of discourse, whether oral, are writing and tailored to the enunciative situations, the text can be understood during discussions undertaken by and with teachers about this thematic area, as a result of interaction, whose meaning is constructed from the text itself, which implies the existence of varied meanings, determined by such interaction and context of use, rather than the establishment of a single possible meaning (Fávero, 1995; Koch, 1995, 2000, 2001; Koch & Travaglia, 1996).

In the words of Travaglia & Koch (1996: p. 25): “[...] The meaning is not in the text, but is built from it [...] a text is constituted as such at the time that partners are in a global communicative activity [...] “are able to build for her a sense.

This way of understanding the text implies a placement of not more directed to the teaching of a mechanical model of text (often the model used by the school), in which the occurrence of various senses is not designed, since the prevailing sense given by the teacher in the teaching situation, i.e., what he considers to be the correct interpretation.

Lacerda (1995) highlights the importance of the text, considering that it is the language that manifests as Berberian (2003) treats the text as the center of the teaching-learning. That way process, makes it appropriate to highlight the importance attributed the production of texts, by virtue of such production reflect the interactions between student-teacher or as called Koch (2001), among interactants.

Before the defense that the teacher should be one of the mediators of the process of appropriation of writing is quite possible the assumption that he, too, is responsible for using various means to enable its students to consider, in the activity of text production: who, how, where, to whom, when and why to produce a text (Smolka, 1988). Undoubtedly, understanding, by students, about these issues (who, how, where, to whom, when and why to produce a text) could facilitate their understanding in relation to their role as player/producer of text. This consideration determines the need for choice by the student, among other things, the different speech genres.

The use of genres as tools for the construction of discourse and language in general, is presented by the Na-
tional Curricular Parameters—PCN, which emphasize the different genres used for writing texts are considered units of curricula and progressions in elementary school.

Authors draw attention to the fact that the school in an attempt to employ genres as tools for the field of language production, fails to understand that the production of a text is influenced by socio-historical and ideological factors that determine their production conditions. When trying to regulate this production, the school ultimately disregard such factors, since not all the conditions that lead to the use of a genre can be played in the school context.

The adoption of a particular genre, in school, according Schneuwly & Dolz (2004), turns out to make it a “school genre”, a variation of the genre of origin (an instrument other practices of simulated language in the classroom). These authors criticize the attitude of the school to use this genre not as a tool that favors the appropriation of language, but as the object of teaching and learning, disconnected from authentic communication situations and dependent on social practices. Is this descontextualization that makes it an educated genre, as it is characterized as a representation of the real model, created by the school, in the pursuit of teaching “modeling” of school genres.

Given the comments Rojo & Cordeiro (2004) and Schneuwly & Dolz (2004), is a frequent concern of teachers with the “modeling” of the text to be produced by the students, i.e., with the production of a text as what they consider a “good text”.

Another aspect to be considered relates to asymmetric-sailed situation established in the classroom, in the production of texts schooled genres, in which the teacher, by proposing training of a standard model, does not allow the participation of the student in choosing the kind to be used. Thus, when such permission occurs, this is linked to the fact that students follow step-by-step recommendations of the teacher, which should result in a deemed appropriate text model, and a particular model of gender, often decontextualized social practices outside the school.

Promoting the use of one or another particular genre is necessary, however, what is observed is that teachers often end up limiting the opportunities that students might have when comparing the possibilities of use of different genres that can serve to the elaboration of texts.

The only alternative for the student to ensure that your text is considered “good”, therefore, is to follow the roadmap set by his teacher because deviate from this script does not imply creativity, possibility of new interpretations, assigning new meanings instead can take you under this distorted interpretation, the condition of disability.

6. Axis 5: The Teacher’s Role as a Mediator in the Process of Appropriation of the Formal Writing

Forward to the discussion that involved the topics previously mentioned, teachers demonstrated special interest to define and better understand the role they occupy in the establishment of a more positive relationship between the child who is in his early schooling of the formal writing language. In this sense, after planning about how this issue should be addressed have, collectively, the option for discussion about the status of teachers as interlocutor and mediator of the situations in the classroom that require graphic productions of any kind.

The interaction in the classroom, according to Smolka (2000: p. 45), is crucial to that writing is characterized as establishing of relationships that can be understood as discursive moment and not merely as an object of knowledge.

In considering, therefore, the interaction and dialogue (which obviously can not be reduced only to school situations and, more specifically, to the classroom) as determinants for the construction of writing, the role of the teacher acquires great relevance in position of text output. This paper refers to the place he occupies as an interlocutor, i.e., as the other (in this case, the literate adult), in relation to their students, since the role of the other also becomes constitutive of the process of appropriation writing because the literate adult plays as significant, the child’s actions with writing (De Lemos, 1982).

Mairynk-Sabinson (2001) reinforces this idea when also features the other, literate adult, as one who works in the process, to assign meaning to the actions of the child with the writing object, from the interactional practices that engage both. The constitution of such practices allows the child to the construction of the significance of writing. This interplay of literate adults and children, in the initial phase of appropriation of writing, enables, with the exchange of experiences, both can move each of its respective place, at certain times, take the place of one another.
This interference is emphasized by Rojo (1994: p. 13), preface to the study of Daudén (1994), which examined the role of the other, in the case of father and mother, as relevant to the constructions of literacy of the child (whose analysis certainly can be applied to the role of the teacher.

Thus, it is crucial the role of the teacher as the introduction of interactive situations that contribute to the process of appropriation of writing.

This mediation determines the understanding that the teacher must allow the student, developing hypotheses about writing, besides assigning relevance to the marks left in the texts. Taking such an approach does not mean leaving aside the work with the orthographic conventions, as well as features not condoning the error.

Mayrink-Sabinson (2001), commenting on the ways in which the other (party-reader) leaves marks on the child writing, underlines the importance of the models offered by such other writing and direct interference, for he held this writing, through oral comments.

Obviously, the process of appropriation of writing depends not only on teacher mediation, as this process begins even before formal schooling. However, interlocutive relationship between teacher and student is critical so it has better able to understand the possibilities of real language use. Therefore, the preoccupation with the formal aspects can also support the idea that the teacher often still attached to a model that considers ideal text, which its students can not distance himself. Thus, under such a concern, the teacher, more than you put on the role of mediator, takes upon himself, as shown by Smolka (2000: p. 36), the “[...] task of teaching established by the school.” According to this author, this task assumes that the teacher starts from a position in which he seizes the knowledge (who believes he has) and passes to the student as to condition yourself to think this natural practice of transmitting knowledge by the teacher. This position implies, then, in the words of this author, a linear, one-sided and static relationship and a monopolization of space in the classroom, the teacher, because what predominates is his speech that, in turn, determines the idea that knowledge is only acquired at school. Therefore, interlocutivas situations do not constitute, in fact.

Smolka (2000, p. 36) identifies, by virtue of this position, the transmission of knowledge, assumed by the teachers as to how they interpret the act of teaching and the act of learning: “[...] the act of teaching is characterized and reduces to speak and to point out the error; the act of learning is characterized by trying to copy and the silence.” The teaching of writing, in this view, comes down to technique, since the writing itself is understood as technical and meaningless, at school, there is a greater appreciation of the formal aspects of writing, to the detriment of the discursive aspects. According to this author, the opposite should occur: breaking the standard of teaching based on the transmission of knowledge, the linearity and one-sidedness, that such a pattern is replaced by the relationship between teacher and student, interlocution, which includes in this case, the joint construction of knowledge. This position then follows the definition of writing built by this author: writing as a discursive moment, as interaction and dialogue present in the context of the classroom.

7. Brief Conclusions

To conclude, we present aspects of the considerations made by the teachers during and immediately after the close of the theoretical-reflective meetings, registered in their diary field, about the dynamics surrounding the creation and functioning of the group consisting, based on partnership between researchers and teachers, and assistance provided for coordination and direction of the school, showed that all teachers involved felt that there was a greater professional integration, with the exchange of information and teaching strategies utilized in other situations, with all students of their respective classrooms.

The teachers also mentioned how the group worked with the exchange between teachers, strategies and materials, favored performance in the classroom, with students who believed, mistakenly, before participating in the project, such as those who had problems with the formal appropriation of writing.

Another aspect highlighted by all teachers was the rescue of confidence in the work itself. According to these teachers, the solutions discussed collectively adopted by them in the classroom, strengthened as it became aware that, despite the participation of researchers in the organization of the group, most of the changes were proposed and conducted by them. Thus, awareness of the capacity for understanding and solving the difficulties of the students, once deemed pathological symptoms, determined the change in expectations and judgments about these students. It was noteworthy that, as reported by teachers, some students initially judged as students with reading and writing problems were later considered by these same teachers as good students since come to understand, minimally, the nature of the errors made by such students in their graphic productions.
Still, we emphasize that the reports of teachers revealed the importance they began to assign them, as one that assists in assigning meanings to writing, as they began to consider the singularities involved in the process of appropriation of the writing.

References


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