

Infant simulation in parental and sexuality education in Greenland

Abstract

The purpose of the article is to examine the ways in which infant simulators used in sexuality education in Greenland operate to include and exclude, embrace and marginalize, offer access to and create barriers to students' learning of parental roles and responsibility, pregnancy and sexuality. *Methodology:* The empirical findings are drawn from the account of the education effects observed in a secondary school in Greenland, partly through an extensive survey of students and parents ($n = 1068$). The sample includes 802 answers to questionnaires from Greenland students, predominantly aged 13 to 16 years, and 266 parental answers. Classroom observations have been supplemented with personal interviews conducted with the principal organiser and the local educators. Additionally, figures on teenage pregnancy, abortion and sexually transmitted diseases were collected from the Greenlandic statistics to get an overview of (presumed) health effects. *Findings:* The short-term impact of the program, including the effectiveness of infant simulation is a change in the teenagers' perceptions of pregnancy and parenting. In addition the evaluation shows an impact on teenage pregnancies according to geographical diversity and social contexts. The article focuses critically on the professional health education competencies implied in the program to cut across methodological boundaries and address educational issues that intersect with youth health, urban development, Inuit values, social welfare and parenting. (Word account 215)

Introduction

Inuit communities and contemporary society

Greenland is a constituent country, lying between the Atlantic and the Arctic seas, east of the Canadian Arctic Archipelago. It has a mixed population, predominantly Inuit but with a large Danish ethnic minority group. Greenland's northern tip lies close to the North Pole, and Greenland is the northernmost national landmass on Earth. Along the coast, the land is marked by deep fjords, high mountains, and a huge number of islands and bars mixed in with icebergs and pack ice. All towns and settlement

communities are located along the ice-free coast; the population is concentrated along the west coast, but there are also inhabited towns and settlements on the east coast.

The Western Greenlanders are mixed in with the Europeans to a greater extent than the Eastern and Northern Greenlanders are. The majority of the Greenlandic people have Greenlandic as their mother tongue, while a minority of the ethnic Greenlanders, along with the Danish Minority, has Danish as their mother tongue. The Inuit culture was previously dominant, but Greenlandic culture today is a mixture of traditional Inuit culture and Danish culture. In many respects, however, the society is divided up into 'traditional' Inuit communities along the coasts and the 'modern' capital of Nuuk.

There is are 10 years of compulsory education in Greenlandic state schools. The school system is divided into three levels, separating the first three years, the next four years, and the final three years. Teaching is conducted in both Danish and Greenlandic, but where Greenlandic is the mother tongue the amount to be taught in Danish varies. Not all pupils are bilingual. There are schools in all towns and settlements, with the number of pupils varying from around 500 at the biggest schools in Nuuk to just 5 in some individual community settlement schools.

The “Doll Program” in Greenland

This article examines processes related to teaching and learning through implementation of a new dialogue-based parental and sexuality education program using infant simulators. The program is focused on social contexts in both Inuit communities and contemporary society, and the study takes social, cultural and educational influences into consideration. Cognition, language and learning processes are considered both in settlement communities and in the capital, and in relation to demographic and cultural value-diversity. The aim is to shed light on the ways in which significant social changes, together with a computerized parental education technology – the so-called “Real Care Baby Dolls” – shapes health education practices.

Since 2006, more than two thousand predominantly eighth and ninth grade students in Greenland have experienced the Real Care baby infant simulators. The program requires students to become the sole carer of the Real Care baby infant simulator.

Over the 2 or 3 days, the students are responsible for the ‘baby’; while an internal computer collects data about the students’ performance. Accompanying education helps students explore the physical, emotional, social, and financial consequences of parenthood. The educators are healthcare assistants, health visitors and midwives, and the teaching takes place primarily in the classroom at school. A Real Care Doll is an infant simulator, which, like a real baby, cries, needs to be fed, changed, rocked, supported by the head and burped to calm down. After the caring period, students hand over the dolls to a midwife or other healthcare professionals for “scanning”. The dolls have a built-in chip, which records how they were looked after. A computer detects the periods during which the doll has been cared for on a scale from 0-100% care and measures a total care percentage and number of neglect of care and maltreatment¹ (.

Students talk about their experiences and the challenges they have had with the dolls with the healthcare professional. Both before and after, students participate in a two or three-day family and sex education program, which has been specially designed with a view to enhancing the quality of their reflections on practical, responsibility-related family and health dilemmas and choices. Along with the new parental and sexuality education program for the oldest students in Greenland’s state schools, caring for the dolls will qualify students to make the basic decision of when and whether they are ready to have a baby. In addition, the program intends to strengthen students’ personal judgments and actions in relation to a safe and responsible sex life. It is hoped that the use of infant simulators will also reduce pregnancy among the students. The primary target group of the Doll Program comprises students in the state school's graduation classes and 'afterschool' students (at a post-High School boarding school). The secondary target group comprises students in youth vocational education, along with families and the pregnant with special requirements. The tertiary target group comprises the students' parents or other family members.

Evaluation of the effectiveness

The need for this sort of effort was identified in the National Medical Office's findings, which show that the rate of teenage pregnancies and abortions in Greenland

¹ <http://realityworks.com/support/participant-app>

has been consistently much higher per fertile female citizen than in other countries. A recently completed evaluation, carried out by Danish researchers from the Department of Education in Aarhus University in the period 1.3.2011 to 1.2.2013 (Wistoft & Stovgaard, 2013), led by the article's author, accounts for the effects observed in the doll project, partly through a comprehensive questionnaire survey among pupils and parents, and partly through interviews with pupils, teachers and stakeholders, along with observations from the teaching. The purpose of the evaluation was to see how the use of the infant simulator influenced students' attitudes to becoming parents. Additionally, the alignment of the computerized infant simulation technology was observed and analyzed, along with a new dialogue-based health education program involving school students in discussions about family planning and parenthood, as well as their own mental and sexual health. The evaluation has helped to enable further work towards a suitable health education methodology, based on involvement and dialogue, in combination with the use of infant simulators in sexuality education.

Evaluation method

The evaluation was based on mixed-methods-type pre- and post-test questionnaire survey design, and supplemented with observations of teaching and personal interviews with the educators. It also drew on national key health indicators obtained from Statistics Greenland. The number of teenage pregnancy and abortions were used to consider demographic diversity. That is, the data were collected by means of both qualitative and quantitative methods (Naido & Wills, 2009; Somers et al., 2002).

The schools included were selected at random. The classroom observations were conducted at selected schools in the capital of Greenland, and in settlements on the West Coast, with the aim of gaining pedagogic insight into how the Doll Program works in practice, thereby illustrating the educational concept's content and form. Throughout the observations, the focus was on the competencies that have been nurtured and developed in the social contexts. Observations were documented in writing. Individual interviews with the principal organisers and the health educators were fully transcribed.

The quantitative part of the study was based primarily on the questionnaire survey of students and parents from twelve different schools. In the questionnaires, the students

were mostly asked about their specific perceptions and visions, and to provide an evaluation of the program, including new reflections gained by their participation. A 16-item questionnaire was designed and managed using paper forms, to be filled out in either Greenlandic or Danish. The descriptive statistics were conducted on the qualitative data using SPSS 16 software. Open-ended questions were analyzed using thematic content analyses. A set of categories was developed inductively as a subset of responses. Once finalized, these were applied to the entire set of responses.

Data sources

The empirical findings in this article are drawn from a report on the educational effects observed in the Doll Program, partly through an extensive survey of students and parents ($n = 1068$) and partly through interviews by educators and observations of the teaching (Wistoft & Stovgaard, 2013). The sample includes 802 answers to questionnaires from Greenland students, predominantly aged 13 to 16 years, and 266 parental answers. Classroom observations ($n = 12$) have been supplemented by personal interviews with the principal organiser and the local educators ($n=6$). Additionally, figures on teenage pregnancy, abortion and sexually transmitted diseases (from year 2004 - 2012) were collected from the Greenlandic Police, Statistics Greenland, and the Medical Office of Health to get an overview of (presumed) health effects: teenage births and abortions according to age and location, SDIs, geographical diversity and social contexts.

Theoretical framework

The article draws on the evaluation data and existing research in the field of practicing parenting and the effects of computerized infant simulators on teenage attitudes towards early parenthood (de Anda, 2008; Malinovsky & Samler, 2003; Somers et al., 2001, Strachan & Gorey, 1997). The use of the infant simulators has been evaluated mainly in the USA, and the majority of the results are positive, with regard to the fact that the participating students began to reflect on important aspects of their lives such as education, age and work, relative to being parents (de Anda, 2006; James & Divine, 2001; Mallery, 2002; Roberts & McCowan, 2004; Somers & Fahlman, 2001). Doll care in family and sex education means that young people reflect on what it takes to be a parent (Barnet & Hust, 2004; Didion & Gatzke, 2004; Kralewski & Steven-Simon, 2000; McCowan et al, 2009, Price & Robinson, 2000). Interest in teaching

using the new baby technology has spread from the USA to the rest of the world, and also now to Greenland. Sexuality education has not previously been researched in Greenland, and therefore never with baby simulators. Price and Robinson, however, has studied the perceptions of rural parents of the “Baby Think It Over program”, and drawn the conclusion that the specific sex education program does have a significant effect on the rural parents’ perceptions (Price and Robinson, 2000).

The theoretical perspective for the critical analyses relies on the theories of a) health education paradigms (Jensen, 1997; Glanz et al, 2008); and b) involvement of students in learning processes (Jensen, 2000; Jensen & Simovska, 2006) and value-clarifications in health education (Kruse & Wistoft, 2009; Wistoft & Nordentoft, 2011, Wistoft, 2010, 2011). The article does not present the full evaluation material, but focuses on selected illustrative quotations in the category “social context of the education”. In the field of systems theory this approach has been called “radical textual hermeneutics”, through which one observes the observer’s observations (Rasmussen, 2004). The research question is: How are the students’ overall awareness and perceptions of early pregnancy and parenting affected by taking care of baby simulators as part of a family and sexuality education program?

Results and substantiated conclusions for points of view

Thinking differently – new reflections

As a result of the program, the vast majority of students have started to think differently and reflect more carefully on the subject of parenthood. Before their experience of caring for the doll, many students have not reflected on the negative consequences of having a baby “here and now”. How a newborn baby would have a negative impact on their lives and their future training, work or educational opportunities is not something they have thought about. This would suggest that the program has had a significant impact on students’ attitudes and values. But approximately half of the students, particularly in settlements and coastal areas, believe that it would be extremely positive for their family if they had a child “here and now”. This is regardless of age and circumstances. Even after their experience of doll care, there are still many students who believe that having a child in the family would have a positive impact. Doll care moves personal attitudes towards becoming parents.

Before the program more girls than boys want to have babies and after the program more boys than girls. Girls are generally more positive than boys in relation to a child “here and now” before the doll care, but more negative after. The opposite is true for boys, some of whom claim that the care kindled their “paternal instinct”. Apparently the program makes girls less inclined to have babies, and boys more inclined.

Even after their experience of doll care, there are still many students who believe that having a child in the family would have a positive impact. It can be concluded that doll care does not have a major effect on the students’ positive assessment of what effect a child would have on the family were they to have a child “here and now”. It is significant that none of the parents who participated in the evaluation questionnaire (N = 266) believe it would be positive for their son or daughter to have a child now.

Having participated in the doll care and the family life and sex education, the majority believe that it would have a negative effect on their lives if they were to have a baby "here and now", more than before their experience of the doll care and the associated educational experience.

Before the doll care, 77% of the students declare that it is important to have their first child with their boyfriend/girlfriend. Girls, in particular, think this is important. Similarly, 86% of students also think it is important that they become a family. These percentages are the same before and after the doll care, but after caring for the doll 92% of all students have a number of new concerns about having a child "here and now." This should be compared with the fact that 88% of the students would like to have a child at some point later in life. This is more than before their participation in the doll project. Most students, then, have not been scared off the idea of becoming a parent. After the doll care, fewer students consider it would be "absolutely devastating for their lives" if they were to have a child now. But far more students are aware that it would have negative consequences, including restrictions in terms of life and educational opportunities. It can thus be concluded that the effect is generally not one of deterrence, but of awareness.

The effect of participating in the Doll Project is significantly greater for those students who have looked after a doll than for students who participate only in the educational component. The experiences and the influences of doll care increase significantly between Days 1 and 2 of care, and less, though still with some increase, between Days 2 and 3. Thus, 2 - 3 days' worth of doll care has a significantly greater effect than 0 - 1 days' worth. Similarly, it turns out that students, who have cared for a doll for several days, are more likely to consider it important to have a baby with their boyfriend/girlfriend and become a family. This means that the longer the students have cared for a doll, the more they become aware that it is important not to be alone with a child.

Younger students, those who are 13 to 14 years old, are most affected by the activities of the doll project and most likely to think differently about what it means to have a child. The 17- to 19-year olds are less affected. Thus, we can conclude that, in terms of education, the best time to work with the dolls is between the ages of 13 and 14.

Overall, students' responses after their experience of doll care and parental and sex education are significantly more diverse than before. This would suggest that the project has had a significant impact on students' attitudes and values. But this the case in regard to questions concerning the influence of the family. Here, approximately half of the students, even after they have cared for a doll, assert that it would have a positive impact on the family if they had a child now.

The use of contraception

On average, students' sexual initiation occurs earlier in the coastal towns than in Nuuk. This motivated earlier intervention with the doll project (i.e. in 7th and 8th grades) but without an assessment of whether students are mature enough to participate. Before participation in the doll project, 29% of the students had sex without the use of any form of contraception. Most (81%) of those who practice birth control use condoms, while 36% use the pill. Of the 71% who have used contraception, only just over a third (35%) always use contraception. Half of the girls and almost all boys, who do not always use contraception, claim that sex is better without contraception. 16% of girls do not use contraception, because it is embarrassing to procure it. The fact that so many students are not using contraception

means that the focus on initiatives to change young people's attitudes and behaviour patterns in terms of the use of contraception is significant.

A significant effect of both doll care and parental and sex education is that students were significantly more motivated to use contraception than they were before. Almost no students who had sex without using contraception prior to doll care said that their habit would continue. We can thus conclude that students' awareness of contraception has been intensified. Just how far this increased awareness of the importance of using contraception leads to altered behaviour patterns has not been studied.

Self-image of parental suitability

Unfortunately, the self-esteem of some students is lower after facing parental duties. So, even though the project's objective is to support parenting, there is also a slight tendency towards a negative effect on students' self-confidence and belief in their own parenting skills. This is linked to the lack of discussion in the teaching about the difference between caring percentage (digitally scanned after the doll care) and parenting. However, for most students this is not enough to rob them of the long-term desire to have a child.

The digital scanning of the dolls and follow-up after caring is done in very different ways. The dialogue, which only in some places takes place in connection with the scanning, has great educational potential, since it allows students to process their experiences with doll care. As described the doll care affects students' self-evaluated parenting both positively and negatively, and that some of the students connect the score directly to a self-image of parental suitability. This is inappropriate, since it is not a given that the doll care percentage gives a real picture of whether or not a student would make a good parent.

This applies in part to students with a high caring rate, since there is a tendency for some students in this group to overinterpret success with doll care, so that they regard themselves as potentially good parents and therefore (soon) ready to have children. An equal and opposite effect can be seen in those students who achieve a very low caring rate, or if the doll has been subjected to "abuse". This group of students experience their doll care as a defeat. The latter is undesirable, because it can have a

negative impact on the student's self-image as a parent. The students' self-esteem is affected undesirably if there is no discussion about the purpose of the doll care and limitations of what the results tell us about the student, including the fact that their caring percentage does not necessarily reflect their ability or readiness to be a parent.

Students' involvement

The Doll Project education places great demands on the teacher. This applies to the choice of teaching materials, teaching reflection, empathy, relational skills, and professional and personal safety.

Students give particular thought to the new knowledge imparted through teaching when they are given space for their own discussions and reflections, not if the teacher doles out the new knowledge without basing it on what the students already know, think and believe. Changes in the students' attitudes and values often occur when the teaching method is based on discussion, and when students have the opportunity to take an active approach to their own life situation and their own ideas about having a baby. It is also important that the teacher does not come across as over-authoritative. In teaching that follows the doll project's educational guidelines, and where discussions are attitude and assessment-related, rather than factual, the students' approach is more exploratory and meaningful. The learning outcomes for the students are significantly greater in places where both students and teachers play an active role: for example, where group work and discussions take precedence over traditional blackboard teaching.

When students feel seen and heard by seriously and sincerely interested teachers, it seems productive and self-reinforcing in terms of their desire to learn and to be part of the continuing discussion in the classroom. In addition, discussion-based teaching can be based on the students' current attitudes, interests and values, together with the challenges they face in everyday life.

Students' self-awareness, self-esteem and cultural values are affected if there is no discussion about the purpose of the doll care and limitations of what the results tell us about the student, including the fact that their care rate does not necessarily reflect their ability or readiness to be a parent.

Implications and educational significance

Significant gains were found on the impact of the students' perceptions of how early parenting affects their social and emotional life, and apprehension of the amount of responsibility involved in infant care. On a post-test measure, the students report significant differences with regard to the age at which they wished to have a child, their educational plans, and their social life. There are significant differences between several monitored parameters in the capital Nuuk and in selected settlements on the coast where the parent and grandparents' desire for a child sets the agenda in many families. Students there have no doubt that "all children are welcome at every time" and they will make especially the grandparents happy if they got a new baby. The main conclusion is that the impact of the sexuality education program depends on the social context and the educators' didactic approaches, i.e., how they teach and involve the students in value clarifications and discussions (ref). There are significant differences depending on the educators' professional skills and competencies.

The results show a substantial need for further competence development among the health educators. To create greater opportunities for the historically marginalized and exposed communities in Greenland, parental and sex education must consider issues of cultural differentiation and inclusion, addressing Inuit values, ethnicity, social class and the language of the student and educators. The results and substantiated conclusions for points of view explore the possibilities and problems of health education and communities, together with the new education technology.

In terms of doll care and parental and sex education, the majority of participating pupils by far have experienced new thoughts around what it means to have a child. The pupils reflect on what it takes to be a parent. Many of them - especially the girls - had thought, before experiencing the doll care component, that having a child "here and now" would result in a negative effect on their lives. Generally, they answer differently in terms of how having a child "here and now" will affect their family: around a half of them evaluate it as being largely positive for the family - which also applies to the youngest, both boys and girls, 13 and 14 years old. As already noted, students on the coast, in particular, believe that it will be extremely positive for the family if they have a child "here and now". The doll care and the educational

experience have no effect on the students' positive evaluations of the ways in which a child will affect the family

However, after the doll care, only few students consider having a child now to be completely destructive for their lives; though many pupils are aware that it would have negative consequences, limiting their life and educational options.

The impact of sexuality education varies, depending on the teacher's pedagogical and didactical competency, personal experience and teaching style, along with their level of personal engagement. In some instances, the teachers behave in a paternalistic and moralizing manner, placing as much importance on the 'care score' as they do on general parenting abilities, and making use of scare stories. In other instances the teachers involve the pupils in activities, working on clarifying values and attitudes, through which the pupils' own wishes and visions about parenthood become central.

The majority of the students have become more conscious and reflective, and thus no more frightened about parenthood. The boys are generally more absorbed in caring for the dolls than the girls. The dolls have a significant effect on all of the pupils' attitudes to becoming parents. Most students are keener than before to take responsibility for deciding when they will have a child. In families, especially on the coast, a new-born child is always a happy event, regardless of when the young person becomes a mother or a father. Here, the dolls have no effect on the attitude. Thus it can be concluded in general terms that the effect consists, not of deterrence, but of increased awareness. When the dolls are used in the teaching to clarify attitudes, the result is a raising of awareness. In worst cases, when they are used paternalistically, the teaching results in deterrence, low self-worth, and lack of faith in parenting abilities. There is a need for further training and skills development in health education among teachers - especially local ones, where they themselves feel inadequate and poorly equipped for the task.

Against this background, the question of whether it's a good idea to continue with the use of the dolls in the schools' final year of classes, combined with the parent and sex education program, is open to discussion. It would seem that that the effect of the work around knowledge and attitude is at its largest in seventh and eighth grades; but,

at the same time, the evaluation has shown that an over-authoritative use is taking place, which 'squashes' the students' self-worth, and their evaluations of their own parenting abilities. So if the students are not involved in teaching, and dialogues do not take place around what they've experienced with regard to the doll care, there is a risk that the teaching will yield the opposite result to that which was intended. These empirical findings confirm previously-existing research within health education, which show how a moralizing and paternalistic health education 'loses' the students (Jensen & Simovska, 2006).

Conclusion

The Doll Program requires didactic reflection to ensure that it can be used to best effect within both languages (Greenlandic and Danish) and the greatest possible alignment across the educational system. The program must match both teachers' and students' requirements with regard to knowledge, expectations, experience and competency (Glanz et al., 2008; Jensen, 2000; Weare, 2000). Likewise, the educational program must develop further with a focus on culturally suitable strategies for change so that social legacy and social values may be reflected (Heinskov 2007; Wistoft, 2009, 2010; Wistoft & Nordentoft, 2011). The statistics from Statistics Greenland show a very high frequency of teenage pregnancies and teenage abortions, which can indicate that Greenlandic young people need to learn to take responsibility for their sex lives. However, with such an indication there is a danger that this equation of teenage pregnancy and (especially) abortion with "irresponsibility" is itself moralizing and paternalistic. It can be argued that the responsibility may be combined with gaining raised awareness and value clarification in relation to parenthood (Heinskov, 2007; Jean-Jacques, 2007) - not delaying pregnancy age and having a first child until after graduation, for example. Here, parental and sexuality education is self-evidently a suitable tool; if the teaching raises awareness and fosters involvement then it will promote young people's mental health (Weare, 2000). The evaluation of the doll project does not have a sufficiently long timeframe to be able to suggest anything about the longer-term effects. The statistics do indicate, however, that in the areas where teaching offers involvement, and embraces dialogue, the number of teenage pregnancies seems to be falling.

There is therefore no doubt that demands must be made around didactic skills development for the teachers who use the program. Among other things, this implies that, as a teacher, you can't instruct if you don't grasp the basic dialogic principles on which the sex education program is based. It is necessary to understand the basic pedagogical principles of dialogue, critical reflection and awareness-raising (Jensen & Simovska, 2006). It is therefore also open to debate whether there must be a general boosting of competencies among teachers, through health education courses, for example, where they look among other things at the difference between a paternalistic, moralizing teaching style, and an actively awareness education.

As a final point, virtual connections may be set up; involving ongoing adjustments and dialogues between teachers, so that the difference between the capital of Nuuk and Greenland's other local communities and settlements (which are, as noted, spread out over an enormous geographical area) is evened out in terms of the program's implementation. It is open to debate whether this should be implemented via a few sexuality education experts, who will be specially trained and then travel around in order to carry out the education over the whole country; or whether a virtual network can be established, through which local teachers can secure the necessary boost to their training and competencies in carrying out the education - and thereby also feel on more familiar terms with the tasks involved in the parental and sexuality education program.

Implications

For researchers and educational practitioners alike, it is important to verify the stability of these empirical findings and interpretations and to provide more explanations for motivational parental and sexuality teaching and learning attributes. Equally, it is important to provide differences between these explanations and those in other studies (de Anda, 2006, 2008; James & Divine, 2001; Malinovsky & Samler, 2003; Mallery, 2002; Roberts & McCowan, 2004; Somers et al., 2001, Strachan & Gorey, 1997; McCowan et al, 2009). Such research includes both qualitative data such as field observations of both teacher and student participants and theoretical, critical and culture sensitive analysis. Moreover, our observations and analysis verify descriptions of existing teaching challenges and learning attributes that have been found in earlier studies. The evaluation focuses critically on the professional health

education competencies implied in the “Doll Program” to cut across methodological boundaries and address educational issues that intersect with youth health, urban development, Inuit values, social welfare and parenting. While my explanation of the teachers’ lack of competence might be similar in different learning environments, it might very well be that the development of their professional health education competencies is based on different educational programmes, or connected to their reflection on different educational core beliefs and values.

(Word account 5129)

References

- Barnett, J. E. and Hurst, C. S. (2004). Do adolescents take “Baby Think It Over” seriously? *Adolescence*, Vol. 39 No. 153, pp. 65-76.
- de Anda, D. (2006). Baby Think It Over: Evaluation of an infant simulation intervention for adolescent pregnancy prevention. *Health and Social Work*, Vol. 31 No. 1, pp. 26-35.
- de Anda, D. (2008) Replication of an Intensive Educational Intervention for Youth Pregnancy and STI Prevention: The GIG. *Child and Adolescent Social Work Journal*, Vol. 25 No. 1, pp. 55-69.
- Didion, J. and Gatzke, H. (2004). The Baby Think It Over experience to prevent teen pregnancy: A post-intervention evaluation. *Public Health Nursing*, Vol. 21 No. 4, pp. 331-337.
- Glanz, K., Rimer, B. K. and Viswanath, K. (2008) *Health Behavior and Health Education*. Jossey-Bass, San Francisco.
- Heinskou, M.B. (2007). Sexuality between risk and opportunity. Fluctuations in postmodern value orientations. *Danish Sociology*, Vol. 18 pp. 55-74 [in Danish].
- James H. and Divine, J.H. (2001) The Effects of Infant Simulators on Early Adolescents. *Adolescence*. FindArticles.com. 03 Jun, 2009.
http://findarticles.com/p/articles/mi_m2248/is_143_36/ai_82535329/
- Jean-Jacques, A. (2007) Pregnancy during adolescence. *The European Journal of Contraception and Reproductive Health Care*, Vol. 12 No. 4, pp. 299-302.
- Jensen, B. B. (1997). A Case of Two Paradigms within Health Education. Health Education Research - theory & practice. *Health Education Research*, Vol. 12 No. 4, pp. 419-428.
- Jensen, B. B. (2000). Health knowledge and health education in relation to a democratic health promoting school. *Health Education*, Vol. 100 No. 4, 146-153.

- Jensen, B. B., & Simovska, V. (2005). Involving students in learning and health promoting processes: clarifying "why?", "what?" and "how?" *Journal of Health Promotion and Education*, Vol. 12 No. 3-4, pp. 150-156
- Kruse, S. and Wistoft, K. (2008). Complexity of Values Clarification in Health Education: A Systems Theoretical Contribution. *Cybernetics and Human Knowing*, Vol. 15 No. 1, pp. 29-44.
- Malinowski, A. and Stamler, L. L. (2003). Adolescent girls' personal experience with Baby Think It Over infant simulator. *The American Journal of Maternal/Child Nursing*, Vol. 28 No. 3, pp. 205-211.
- Mallery, J. G. (2002). Practicing parenting? Effects of computerized infant simulators on teenage attitudes toward early parenthood. *The Journal of Early Education and Family Review*, Vol. 9 No. 5, pp. 18-28.
- McCowan, R.J. et al. (2009). Using Infant Simulation to Reduce Pregnancy Among High School Students. *The Health Educator*, Vol. 41 No. 1, pp. 35-41.
- Naido, J. and Wills, J. (2009). *Evaluation in health promotion*. In Naido, J. & Wills, J.: Foundations for health promotion. Baillière Tindall Elsevier. New York, NY, pp. 287-304.
- Price, J. and Robinson, K. L. (2000). Rural parents' perceptions of the Baby Think It Over program. *American Journal of Health Studies*, Vol. 16, pp. 34-41.
- Rasmussen, J. (2004). Textual interpretation and complexity - radical hermeneutics. *Nordisk Pedagogik*, Vol. 24, pp. 177-194.
- Roberts, S. W. and McCowan, R. J. (2004). Effectiveness of infant simulators. *Adolescence*, Vol. 39 No. 155, pp. 475-487.
- Somers, C. L., Johnson, S. A. and Sawilowsky, S. S. (2002). A measure for evaluating the effectiveness of teen pregnancy prevention programs. *Psychology in the Schools*, Vol. 39 No. 3, pp. 337-342.

- Somers, C.L., Gleason, J. H., Johnson, S. A. and Fahlman, M. M. (2001). Adolescents' and teachers' perceptions of a teen pregnancy prevention program. *American Secondary Education*, Vol. 29 No. 3, pp. 51-66.
- Strachan, W. and Gorey, K. (1997). Infant simulator life space intervention: Pilot investigation of an adolescent pregnancy prevention program. *Child and Adolescent Social Work Journal*, Vol. 14 No. 4, pp. 171-180.
- Weare, K. (2000). *Promoting mental, emotional, and social health. A whole school approach*. London: Routledge.
- Wistoft, K. (2009). Pedagogical competence and value clarification among health educators. *IUHPE - Global Health Promotion*, Vol. 16 No. 3, pp. 24-34.
- Wistoft, K. (2010). Health strategies and reservoirs of knowledge. Among adolescents in Denmark. *IUHPE - Global Health Promotion*, Vol. 17 No. 2, pp. 16-24.
- Wistoft, K. and Nordentoft, H. M. J. (2011). Value reflected health education. *Nordic Studies in Education*, Vol. 31, pp. 1-13.
- Wistoft, K and Stovgaard, M, (2013). *Evaluation on the "Doll Program" in Greenland. Effects of computerized infant simulators on students attitudes toward healthy sex life and parenthood*. Report, Aarhus University, Department of Education, Copenhagen, February 2013 [in Danish].