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Evaluating the effectiveness of a sexuality education teaching unit designed by teacher trainees: Effects on students and the importance of teacher training

The field of sexuality education makes use of many different “approaches, forms, pedagogies, and resources” (Ponzetti, 2009, p. 2). The term *comprehensive/holistic sexuality education* will be used for this paper, as it is defined as follows:

Learning about the cognitive, emotional, social, interactive and physical aspects of sexuality. Sexuality education starts early in childhood and progresses through adolescence and adulthood. It aims at supporting and protecting sexual development. It gradually equips and empowers children and young people with information, skills and positive values to understand and enjoy their sexuality, have safe and fulfilling relationships and take responsibility for their own and other people’s sexual health and well-being (WHO, 2010).

In this paper, we thus view sexuality education as being “as much about personal relationships as biological understanding” (Allerston & Davies, 2001, p. 5). Even though it might be similar to other subjects in some respects with regards to the transmission of knowledge and the development of personal autonomy, it is also about human relationships and thus includes the “private, intimate life of the learner” (Halstead & Reiss, 2003, p. 3). Sexuality education goes beyond the topic of human sexuality by “encouraging certain kinds of skills, attitudes, dispositions, behavior, and critical reflections on personal experience” (Hallstaed & Reiss, 2003, p. 7).

There is evidence for the effectiveness of comprehensive sexuality education in terms of promoting sexual health by “advocating sexual knowledge and understanding and reducing

sexual risk behavior” (Kantor & Bacon, 2002, p. 39, Ponzetti, 2009, p. 9). Effective programs have the potential to reduce misinformation, increase accurate knowledge, clarify and strengthen positive attitudes and values, increase skills to make informed decisions and act upon them, improve perceptions about peer groups and social norms, as well as increase communication with parents and other trusted adults (Browne, 2015, p. 4, see also Kirby, 2008; Schuster, 1996). Learner-centered, interactive approaches have proven to be more effective in educational settings (Browne 2015, p. 2; Eisenberg, Bernat, Bearinger & Resnick, 2008; Haberland & Rogow, 2015).

Sexual confidence can be described as an “inner sexual awareness” (Penner & Penner 2005, p. 102) leading to knowing about own sexuality and needs. It has to be and can be learned: “knowledge, practice and positive sexual experience” (Penner & Penner, 2005, p. 101) lead to positive sexual confidence. The objective of sexuality education should be to build confidence and to teach students to respect themselves and others (Department of Education, 2000, p. 4). Students should be able to “develop confidence in talking, listening and thinking about sex and relationships” (Department of Education, 2000, p. 22).

Sexual communicative competence is based on expressive and receptive aspects (Metts, Sprecher & Regan, 1997, p. 366). These include being able to communicate own needs on the one hand and accept those of others on the other (Metts, Sprecher & Regan, 1997). Good communication skills build the basis for good relationships,

particularly sexual communication skills (Butler 2011, p. 12). Further, safe sex practices are fostered by communication (Weinstein, Walsh & Ward, 2008, p. 214). Similar to sexual confidence, sexual communication skills can be learned and develop with practice. Sexuality education classes provide an ideal framework to foster and practice sexual communication (Butler, 2011, p. 14).

Sexuality Education in Germany

Sexuality education has been integrated in German schools on the individual state level since 1968. The publication of the Pregnancy and Family Aid Act in the mid-1990s introduced nationally mandatory sex education programs, but federal states still remained responsible for the establishment and implementation of such programs (Beaumant & Maguire, 2013, p. 19). Nearly all federal states define what sex education should address in their Education Acts (National Foundation for Educational Research, 2009). Usually Sexuality Education is taught as a part of the biology curricula. Despite individual differences on the state level in terms of topics covered, generally sexuality education in Germany is intended to empower youth to make responsible decisions and to individually determine their lifestyle and sexuality (BZgA, 2018a, p. 19).

Thus, Germany approaches sexuality in a holistic way, including “emotions, relationships and ethics” apart from “biological and medical views” (Beaumant & Maguire, 2013, p. 19). The country follows the notion of emancipatory sex education, meaning “a positive, non-repressive, and dialogue-based approach” (Berne & Hubermann, 1999, p. 43). However, oftentimes the focus of sexuality education in school is mainly set on biological aspects of the subject, such as sexual organs, period, STDs, contraception, pregnancy, and birth (Vitzthum, 2014)¹.

High quality, comprehensive sexuality education has become increasingly important considering the recent technical and social developments in our globalized world (European Expert Group on Sexuality Education, 2015 p. 429). Informal sexuality education, e.g. through friends (Bleakley *et al.*, 2009; Secor-Turner *et al.*, 2011) or family members (Bleakley *et al.*, 2009;

Fuxman *et al.*, 2013). Well-trained teachers with personal as well as professional skills are needed for the successful implementation of this type of sexuality education (UNESCO, 2016). However, little or no training does exist for pre-service teachers (Ollis *et al.*, 2013, p. 1) and teachers have long been feeling inadequately prepared for teaching sexuality education (Wight & Buston, 2003, p. 522).

Due to the importance of good-quality sexuality education, the present study evaluated a teaching unit conceptualized and carried out by teacher trainees at a local school.² In order to determine the unit's success, the school students' knowledge gain as well as developments in sexual communicative competence and sexual confidence were evaluated. Additionally, the students' (informal) sources of information were evaluated.

A small sample of university students in teacher training was also asked about how adequately they felt prepared for teaching sexuality education in school, since teachers play a crucial role in effective sexuality education (in schools).

Method

Participants

For the school setting, participants of the study attended two parallel classes at a German secondary school, with 29 and 30 school students respectively (n total= 59). A total of 27 girls and 32 boys took part in the study. They were aged between 11 and 13. For evaluating the teacher training at the university level, a total of 17 students took part in the study. They were all enrolled in a particular seminar as a part of their training as future biology teachers.

Instrument

For investigating the school students' sexual communicative competence, their sexual confidence, as well as their knowledge with regards to sexuality, questionnaires were used. The first and the second were based on a study by the BZgA (Bundeszentrale für gesundheitliche Aufklärung, Federal Center for Health Education) (for further information see Appel & Kleiber, 1998). The questionnaire for sexual communicative competence was composed of eight items which had to be rated on a six-step

1. For a comprehensive overview, also within Europe, see e.g. BZgA, (2018b).

2. For more information concerning the unit, see Wegner, Seide & Zehne, (2016).

Likert scale ranging from 0 (not difficult at all) to 5 (very difficult). The questionnaire evaluating students' sexual confidence consisted of eight items as well, which had to be rated on a five-step Likert scale with 1 (fully disagree) to 5 (fully agree). The knowledge test used in the study was mainly composed of multiple-choice questions or labeling tasks which were related to the topics discussed over the course of the teaching unit. There was one question on the test for each topic discussed. Table 1 (below) gives an overview of the scores for Cronbach's α with regards to the individual instruments' reliability at individual

60-minute lessons and lasted four weeks. The participants' sexual communicative competence, their sexual confidence, and their knowledge gain with regards to sexuality was examined in a pre- and post- test design which was applied in the two parallel classes. The teacher trainees at the university level were asked about their sexual confidence once in a biology seminar which was part of their university studies.

The statistical analysis of data for sexual communicative competence and sexual confidence included the median, maxima and minima. Apart from that, differences in means

Table 1. Scores for Cronbach's α for individual questionnaires used at pre- and post-test dates

Instrument	α pre	α post
Sexual communicative competence	0.842	0.823
Sexual confidence	0.556	0.535
Knowledge test	0.397	0.358

test dates.

For evaluating students' (informal) sources of information with regards to sexuality, two multiple choice questionnaires with seven options to choose from (mother, father, siblings, friends, teachers, doctors, nobody plus the internet/books for sources of information) were used. It was assumed that there is a difference between trusted persons and plain sources of factual information when it comes to sexuality. It was possible to give multiple answers for the questions in both questionnaires

The questionnaire used for evaluating the university students' sexual confidence was an adapted version of the one used for the school students. University students could choose answers from a six-step Likert scale ranging from "very insecure" to "very secure". Additionally, students had to state whether they received training at the university level or elsewhere and whether they wished for more training at the university.

Procedure

One part of the study was conducted in the context of a teaching unit which consisted of five

before and after the unit were tested for significance with the t-test for dependent samples. For the knowledge test, differences in means of scored points were tested for significance as well. In addition to actual points scored on the test, students had to assess their individually perceived knowledge gain. Results of their evaluation and actual means scored were correlated. A one-way repeated measures ANOVA was used for examining developments in sexual communication and confidence and development of knowledge for both sexes.

Results

Table 2 (page 23), gives an overview of overall results with regards to individual dimensions and differences between female and male school students. Results for individual scales will be presented separately.

The school students' overall mean score for *sexual communicative competence* at the pre-test was 2.12. The mean value increased to 2.63 at the post-test date with the differences in means of pre- and post-tests being significant (values of the scale ranged from 0 not difficult at all to 5 very

difficult). Looking at both sexes individually, female students scored a mean of 1.90 on the pre-test, where the male students scored 0.39 points higher (table 2). On the post-test, both sexes scored the same mean for sexual communicative competence (2.63), however, none of the results were significant (table 2).

students evaluated themselves worse than they scored on the actual knowledge test.

Figure 1 (page 24), displays the results for the people school students go to when seeking advice. Looking at the total number of people mentioned, friends were the most important, sources of information, followed by the students' mothers

Table 2. Overall means and standard deviations (SD) for sexual communicative competence, sexual confidence, and knowledge at pre- and post-test dates as well as results of the t-test for dependent samples (n=51).

	Pre (SD)	Post (SD)	T-Test for dependent samples
sexual communicative competence	2.12 (1.04)	2.63 (0.94)	T = -2.678 , p = 0.010*
sexual confidence	2.11 (0.57)	2.35 (0.57)	T = -2.216, p = 0.031*
knowledge	3.41 (1.89)	5.90 (2.00)	T = -7.478 , p = 0.000**
self-evaluation knowledge	3.04 (1,20)	4.03 (0,72)	T = -5.101 , p = 0.000**

Notes: *p < .05. **p < .01

For *sexual confidence*, students scored an overall mean of 2.11 on the pre-test (with values of the scale ranging from 1 fully disagree to 5 fully agree) Means improved by 0.24 for the post-test with differences in means being significant. Looking at means for female students, they scored the same as for sexual communicative competence on the pre-test. In the post-test, their score was 2.22. For male students, the mean of the pre-test was 2.29. Their mean score for the post-test was slightly higher (2.45) than the one of the female students. Significant differences in mean scores between male and female students could only be found for the pre-test.

Taking a look at the *knowledge test's* results, overall means were 3.41 on the pre-test. Means improved by 2.49 at the post-test (see table 2) with the difference in results being highly significant. Students' overall self-evaluation improved by 0.99, from 3.04 to 4.03, at the post-test. Female students scored a mean of 2.98 on the pre-test while male students reached a mean of 3.77. Female students improved their means on the post-test by 3.02 and scored higher means compared to males (table 2). However, differences in means between the two sexes were not significant at pre- or post-test dates. For students' self-evaluation, means increased by 0.9 at the post-test (see table 2). With a self-assessed score of 4.03,

with 36 mentions. Their fathers were mentioned less than half as much (figure 1). Almost 12% did not ask anybody for advice with regards to sexuality. None of the students stated that they would talk to their teachers when it comes to these kinds of topics (figure 1). Particularly for girls their friends were the most common people to talk to (over 50%), the same applied for the boys. Where more than 40% of the girls mentioned their mother as the second most important source of information, both parents were nearly equally important for the boys. Unlike boys, the girls also mentioned doctors as people they would talk to. Nearly 10% of the boys stated that they did not have anyone to talk to.

As for the overall answers for sources of information, the students' friends were the most important, with nearly 70% of mentions, followed by their teachers and the internet/books (47% and 45% respectively, figure 2, page 24). Putting the focus on family members, mothers were mentioned with 16 votes. None of the participants would ask a doctor for information. For female and male students separately, the results were slightly different. Only one female student stated she would use her father as a source of information, whereas boys asked them more often than their mothers. Boys also mentioned teachers twice as much (figure 2).

Figure 1. Percentages for school students' sources of information (total n=51)

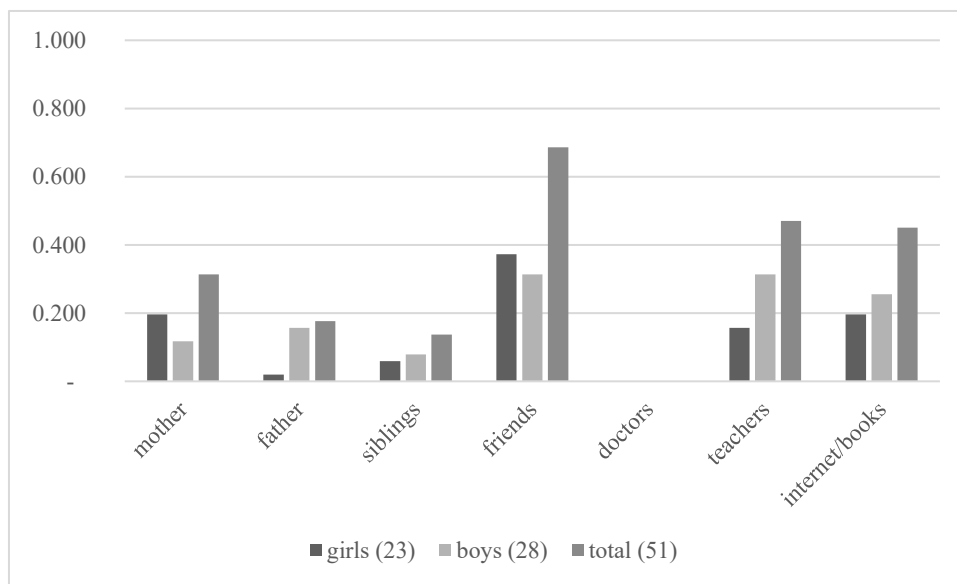
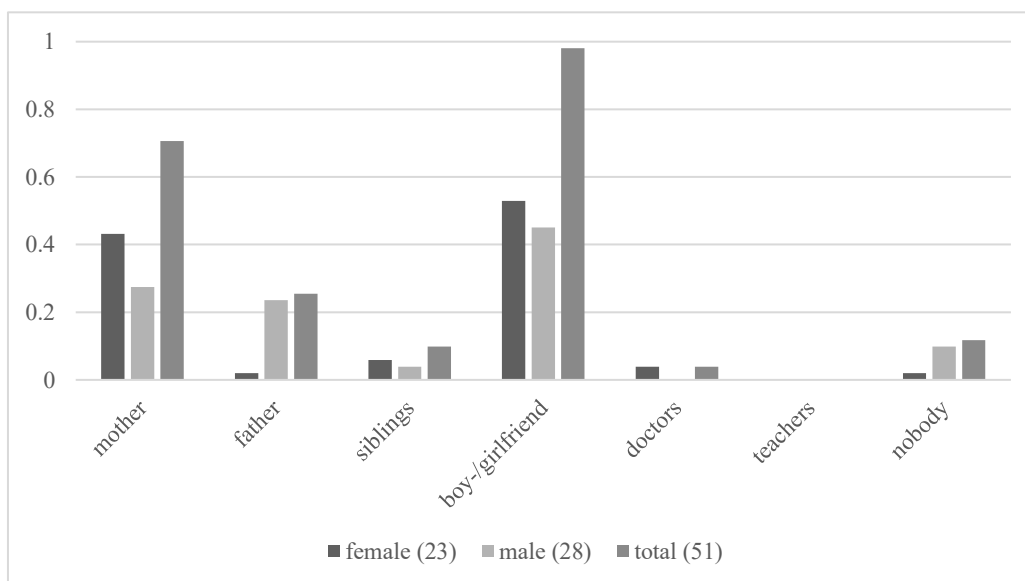


Figure 2. Percentages for persons school students talk to when seeking advice regarding sexual topics (total n=51)



Results for the university students showed that the majority of students have not had any university training with regards to sexuality education. More than 40% used offers other than those at the university to receive training and 70% wished for more training at the university level.

Discussion

Recalling our assumption that the teaching unit would improve school students' sexual communicative competence, their sexual confidence, and knowledge, it can be noted that these expectations held true, as the overall

increase in means of the students' sexual communicative competence, sexual confidence, and knowledge gain were significant having compared pre- and post-tests. Comparing scores of both sexes showed that there were no significant differences except for differences in means of sexual confidence at the pre-test, which revealed that males were significantly more confident prior to the teaching unit. The unit's holistic and learner-centered approach can thus be related to the significant increase in the aspects investigated. This in turn speaks for the effectiveness of such holistic, learner-centered,

active approaches to sexuality education, which is also mentioned in several meta-analyses which compared the effectiveness of this kind of approach to other approaches (mainly abstinence-only programs).

Even though students did not view their teachers as a person to talk to, they were the most important sources of information apart from the students' friends. This seems especially relevant in connection to the results of the questionnaire conducted at the university level. Many students stated that they did not have courses dealing with sexuality education over the course of their teacher training at university and expressed the desire to receive more training when it comes to this topic. The adequate training of future teachers is an important aspect to consider when dealing with effective sexuality education, as they play an important role in providing information for students.

Despite the fact that the study yielded interesting results, the small sample size has to be kept in mind, particularly when it comes to the university students, which accounted for low Cronbach's α values. In addition to that, the students' personal background/ experience was not evaluated in the context of the study. However, these variables could have had an impact on the results.

Despite the small sample size, the study could relate the effectiveness of the type of sexuality education applied to the significant increases in students' sexual confidence, communicative competence, and their knowledge. This hints at the value of this type of instruction and is in line with other research findings on effective sexuality education (e.g. Kirby, 2008; Schuster, 1996). It can also be noted that teachers and the school context seem to be an important factor with regards to the transmission of information about sexuality when looking at the results of the questionnaire distributed to students. This in turn underlines the importance of adequate teacher training, as teachers' competence is an important factor for the success of such programs (e.g. UNESCO, 2016). The study at hand, however, could give an insight into the fact that the sample of future teachers at university did not feel adequately prepared for teaching the subject due to a lack of university courses related to the issue. Future studies need to investigate this trend in more detail in addition to further evaluating the impact of such programs on

the parameters addressed in this study. To ensure an adequate sexuality education, the focus should be put on the training of future teachers and on those teachers who are already confronted with the subject and have not yet received adequate training.

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