

**DEVELOPMENT OF THE GREEK SEXUALITY ATTITUDES QUESTIONNAIRE –
LEARNING DISABILITIES (GSAQ-LD).**

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Abstract

The Greek Sexuality Attitudes Questionnaire – Learning Disabilities (GSAQ-LD) was developed as a research instrument for use with a Greek sample in order to assess its attitudes towards the sexuality of people with and without learning disabilities (LD). The 45-item, Likert-type questionnaire consists of four different scales, each of which indicated satisfactory item characteristics, adequate reliability and homogeneity and preliminary support for criterion-related validity.

Keywords: learning disabilities, sexuality, scale development, reliability, validity.

Introduction

There has been a popular view that the sexual behaviour of LD people is undesirable for the society, or even potentially dangerous (Watson, 1980). It was during the 1970s that the contradictory myths of over-sexuality or under-sexuality were replaced by a concern for the sexual rights of people with disabilities. However, this change was more marked amongst professional staff working with the LD than amongst the families of LD people or members of the general public.

A review of the relevant literature showed that there have been no studies that have examined lay people's attitudes towards the sexuality of people with LD. Two studies have used samples which did not consist of staff. Both of these studies used groups of university or college students to assess their tolerance of sexual activities engaged in by people with LD in the USA (McEwen, 1977; Scotti et al, 1996a). Additionally, many studies have mainly employed samples of professionals working with this population (Mulhern, 1975; Sebba, 1981b; Chapman & Pitchealthy, 1985; Rose & Holmes, 1991) and only a few of them have included comparison groups of non-professionals. These comparison groups were usually university or college students rather than members of the general public. However, Karellou and Trueman (1999) conducted a cross-cultural study, investigating attitudes towards the sexuality of LD and non-LD individuals of staff and members of the general public in Greece and in the UK which used a comparison group of both students and lay people.

Research on public attitudes towards the sexuality of the LD is to some extent limited by the lack of a standard assessment instrument that would allow direct comparisons between studies. Such a measure would also allow researchers to compare attitudes towards the sexuality of the non-LD with attitudes towards the sexuality of the LD (Karellou & Trueman, 1999; Scotti et al, 1996a). For example, most of the studies used different measures, usually developed for the purpose of the particular study. With such variety of assessment measures it is very difficult to make meaningful comparisons across studies. Furthermore, a large number of studies did not include questions which referred to sexual aspects of non-LD people (e.g. Mitchell et al, 1978; Coleman & Murphy, 1980; Adams et al, 1982; Squire, 1989). Only six studies were located that made any reference to the sexuality of the non-disabled population (e.g. Brantlinger, 1983; Katoda, 1993; Scotti et al, 1996a) and thus, it was very difficult to establish whether or not participants were more tolerant in their sexual attitudes towards the sexuality of people with than without LD.

Based on the aforementioned limitations related to the availability of appropriate research instruments the **main objective** of the present article is to describe the development of an instrument which assesses attitudes towards the sexuality of people with and without LD in Greece.

Although the SMRAI (Brantlinger, 1983) and the POS (Scotti et al, 1996a) have been previously used to measure attitudes towards the sexuality of people with LD it was decided that they would not be employed in the present research. There were three reasons for that decision. First, both instruments were involved in studies that were carried out in USA and were considered not culturally appropriate for use in Greece. Second, they were both administered to either college students or professionals whereas the present research was addressed to members of the general public. Third, the POS scale was focused on specific sexual behaviours (masturbation, and kissing, petting, oral and anal sex with a partner of either the same or the opposite gender) without considering

other aspects of human sexuality (e.g. right to sexual education, access to contraception).

Additionally, most investigators provided little or no evidence at all about the psychometric properties of their measure such as their reliability and validity (e.g. Coleman & Murphy, 1980; Sebba, 1981b; Blunn et al, 1984; Katoda, 1993; Mercier et al, 1994). Only studies that employed the SMRAI (Brantlinger, 1983; Rose and Holmes, 1991; Murray & Mines, 1994) reported high correlation coefficients and Cronbach's alpha coefficients that indicated internal consistency. The lack of reliability and validity information for most of the studies questions their credibility and challenges any conclusion drawn based on their results.

Thus a **second objective** is to evaluate the new instrument using data collected from a sample of 311 members of the general public in Greece. Having established good psychometric properties of the measure it could then be employed in future research to allow comparisons across studies.

Methodology

Procedure

Data for this study were collected during two periods of time in 1997 in the greater Athens area as well as in two other Greek towns: Agrinion, a town situated in the mainland, 300 km to the North - West of Athens with 65.000 inhabitants and, Iraklion, with 300.000 inhabitants, in the centre of the island of Crete. One group of people was individually approached and the purpose of the study was explained to them. Once they agreed to participate, they were given a questionnaire, which was collected some days later. Another group of participants was contacted at their place of work through four "key persons" who were identified and briefed about the purpose of the study by the researcher. These "key persons" distributed the questionnaires at their working places and collected them back some days latter. The rest of the participants during both periods

of data collection were contacted through respondents who had already been involved in the research.

An introductory letter explaining the purpose of the study and assuring confidentiality was given along with each copy of the questionnaire. Participation in the study was strictly voluntary and all the questionnaires were completed anonymously.

Sample

A total of three hundred and eleven questionnaires were completed. Ten respondents omitted a substantial number of responses (responses to more than five items) and thus were not included in the data analysis. Consequently, the results of the present study were based on the responses of three hundred and one people who represented a convenience sample.

Gender and age

Table 1 shows the sample distribution divided by gender and age of respondents. Participants were divided into three age categories: 20-30, 31-40 and more than 41 years old. Most of the respondents were between 20 and 30 years old and there were almost twice as many females in this age category than males. A Chi square (χ^2) between gender and age revealed a significant difference in the distribution ($\chi^2 = 8.36$, $df = 2$, $p < 0.02$) according to which females were more likely to be 20-30 years old than males were.

Table 1: Sample distribution by age and gender

Gender (%)	20 - 30 yr.	31 - 40 yr.	41 + yr.	Total (%)
Male	46 (15.3)	53 (17.6)	30 (10)	129 (42.9)
Female	89 (29.6)	48 (15.9)	35 (11.6)	172 (57.1)
Total	135 (44.9)	101 (33.5)	65 (21.6)	301 (100)

Level of education

The structure of the whole educational system in Greece is developed on three levels: Elementary education, Secondary education and Higher education. Postgraduate (PG) studies are currently being developing in Greece and there are departments that do not offer PG courses. Therefore, most PG degrees have been awarded by foreign institutions. Respondents were grouped into six educational levels starting from elementary education through to postgraduate studies. Graduates of secondary education who did not enter higher education were grouped into a seventh category labelled "other". They were qualified as skilled workers by attending some specialised courses.

As shown in table 2 most participants have either completed secondary education (38.3%) or graduated from higher or highest education (43%). Since almost half of the sample has acquired a higher education it can be argued that the present sample consists of well-educated participants. This could have implications for the findings since previous studies found that the greater the educational level the more liberal the attitudes towards sexuality of people with learning disabilities. One respondent failed to give any information about his/her educational attainment.

Table 2: Sample distribution by educational level and gender

Educational level (%)	Male	Female	Total (%)
Elementary	7 (2.3)	4 (1.3)	11 (3.7)
Gymnasium	7 (2.3)	12 (4.0)	19 (6.3)
Lyceum	44 (14.7)	71 (23.7)	115 (38.3)
T.E.I.	25 (8.3)	42 (14.0)	67 (22.3)
University	30 (10.0)	32 (10.7)	62 (20.7)
Postgraduate studies	9 (3.0)	5 (1.7)	14 (4.7)
Other	6 (2.0)	6 (2.0)	12 (4.0)
Total	128(42.6)	172 (57.4)	300 (100.0)

Social class

The lack of a standard social class stratification in Greece has led researchers to develop their own classifications to explore social class. For example, Tzoumaka-Bakoula & Lovel (1983) assigned families of their study into “good, average and poor socio-economic situation” without however clearly operationalised that classification.

A widely used method to determine a person's social class has been based on occupation (e.g. Tounda, 1993; Vassiou-Pediaditaki, 1993; Padeliadou, 1998). A combination of occupation and educational level was another approach taken to social class classification in Greece (e.g. Zarnari, 1979; Matinopoulou, 1990; Thomou, 1998). The classification of socio-economic class in the present study is based on level of education, occupation and economic sector of occupation (private or public).

The system of occupational grading used was based on that suggested by the National Statistical Service of Greece (1992) in which occupations are ascribed to ten general groupings. Economic sector (public/ private) and participants' employment status (employer/self employed/ employee) were used as additional components of occupation. Kassimati (1991) argues that occupational choice is based on these two components since the same job differentiates as much according to the economic sector as to the employment status. Participants were allocated to one of the following four social classes according to their educational level as well as the information regarding their occupation: high social class, upper middle class, lower middle class and working class. A fifth category, "not in employment", was used to identify those who were not in full-time paid employment.

The "high social class" involves occupations of high status and high income (e.g. members of parliament, manufacturers, managers of public or private services and big organisations, high-ranking officers in the army). Members of this group can be the social, economic and political leaders in Greek life. They would probably have graduated from University and might have completed postgraduate studies. Their positions carry great social prestige, which is recognised by the rest of society. Social prestige and wealth provide these positions with power and authority.

In all distinct traditions of class analysis, the middle social class constitutes the broadest social group, which can be divided in several sub-categories. It involves a great

variety of occupations, which require different educational attainments and are associated with less income than the occupations included in the "high class". They can be regarded as intermediate occupations falling between the two extreme classes. In the present study the middle class is sub-divided into two groups.

Occupations included in "upper middle class" require the same level of educational qualifications as those in high class. Their lower status is attributed to their lesser income and social prestige. Members of this social class would be working in areas of science, higher education or art. Analysis of the British and Greek data suggests that the "real consequence" of even routine or "deskilled" non-manual work is to shape class identities in such a way as to give those involved a socio-political profile that has more in common with the middle classes than the proletariat (Papadopoulos, 1987; Marshall, 1997). Based on this rationale, participants of the present study who identify themselves as either clerical or secretarial employees were allocated to the "lower middle class" regardless of their university degree. It was suggested that a university graduate is not fully exploiting his or her credentials if employed in clerical work.

The "lower middle class" consists of occupations, which are more technically oriented in all professional fields. Members of this social class have graduated from the higher education or some other technical institutions and colleges and they are working under the supervision of people falling into the two preceding classes. This class also encompasses people who are in the retail trade as well as those who work on commission or are self-employed even if they have only acquired secondary education.

The educational attainment of members of the "working class" rarely exceeds secondary education and they are mostly employees in either public or private economic sector. This class embraces skilled, semi-skilled and unskilled clerical and manual workers with usually low income. Table 3 below shows the sample distribution according to respondents' social class. It should be noted that classification of social class was

available only for 249 respondents who provided information about their education and occupation.

Table 3: Sample distribution by social class and gender

Social class	Male	Female	Total (%)
High class	3	4	7 (2.8)
Upper middle class	20	16	36(14.3)
Lower middle class	34	45	79(31.7)
Working class	33	45	78(31.3)
Unemployed	10	39	49(19.7)
Total	100	149	249(100)

Contact with people with learning disabilities

The influence of contact with people with LD on respondents' attitudes towards the sexuality of this population has not been much studied in previous research. Participants in the present study were asked to provide information about any contact they have had with a LD person. They were asked two questions: one referred to the frequency of contact with a LD person and the other asked respondents to provide a description of this contact. The frequency of contact was rated according to five alternatives: daily, weekly, at least once a month, never and other. The combination of frequency of contact and its description as it was expressed by the respondents resulted in another variable which showed the respondents' relationship with a LD person. As shown in table 4 participants were assigned into the following six groups according to the nature of their contact with a LD person: a) close (relative), b) casual (client, patient, student, co-worker), c) acquaintance (neighbour, unplanned but regular meetings), d) former (known somebody in the past), e) familiar-rare (not often or regular contact) and f) none. There were no statistically significant differences between males and females who had some contact with a learning disabled person and those without any such contact ($\chi^2=0.031$, $df=1$, NSD).

Table 4: Sample distribution by description of contact and gender

Description of contact	Male (%)	Female (%)	Total (%)
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Close	3 (1.3)	6 (2.6)	9 (3.9)
Casual	14 (6.0)	21 (9.0)	35 (15.0)
Acquaintance	21 (9.0)	19 (8.2)	40 (17.2)
Former	1 (0.4)	7 (3.0)	8 (3.4)
Familiar	14 (6.0)	26 (11.2)	40 (17.2)
None	40 (17.2)	61 (26.2)	101 (43.3)
Total	93 (39.9)	140 (60.1)	233 (100)

Place of residence

As mentioned earlier (see procedure) questionnaires were distributed to respondents in Athens, Agrinion and Iraklion. In order to examine any possible differences between people living in the capital and those living in smaller urban areas respondents were grouped according to their place of residence (living in the capital or in the provinces). The distribution of the sample according to gender and place of residence is shown in table 5 below. A chi square (χ^2) between gender and place of residence revealed significant gender differences indicating that more female participants were living in Athens than males ($\chi^2=12.858$, $df=1$, $p<0.001$).

Table 5: Sample distribution by place of residence and gender

Place of residence	Male (%)	Female (%)	Total (%)
Capital	92 (30.6)	151 (50.1)	243 (89.7)
Province	37 (12.3)	21 (7.0)	58 (19.3)
Total	129 (42.9)	172 (57.1)	301 (100)

Development of the instrument

The questionnaire used in this study was developed by the present author for the purpose of a cross-cultural study examining attitudes towards different aspects of sexuality and people with LD in Greece and the UK (Karellou & Trueman, 1999). It comprised 68 Likert-type items that were generated from previous international research (e.g. Mitchell et al, 1978; Coleman & Murphy, 1980; Adams et al, 1982; Brantlinger, 1983; Sweyn-Harvey, 1984; Chapman & Pitceathly, 1985; Johnson & Davies, 1989) and were considered culturally appropriate for use in Greece. These items were originally written in English and

divided into 7 intuitive scales. Thereafter, six Greek postgraduate students translated them into Greek and back into English. A few items of the Greek version had to be altered because of linguistic differences among the two countries. Statements were expressed in both positive and negative forms and their order was randomised.

Each item was scored from 1 to 5 on a 5-point agree-disagree continuum and coded so that a high score indicated a contemporary attitude and a low score a traditional attitude towards the sexuality of people with and without LD. Participants were also asked questions referring to their personal characteristics (gender, age, educational level, marital status and work status) as well as two questions regarding contact with learning disabled people.

The first scale of the questionnaire addressed General Attitudes Towards Sex (comprising items 2, 16, 40, 43, 49, 52, 55, 58, 60, 62), which could range in score from 10 to 50. High scores indicated greater tolerance for individual choice regarding sexual behaviour, a view that sexuality and sexual expression are healthy and positive. Low scores suggested a negative attitude towards sexual expression outside marriage.

The second scale measured Attitudes towards Sex Education (comprising items 26, 46, 47, 48, 51, 54). It produced a lowest possible score of 6 and a highest possible score of 30 with the latter indicating support for the view that provision of sexual information is beneficial for everybody. Low scores reflected negative feelings regarding sexual information.

The third scale assessed Attitudes towards Sex Education for Learning Disabled people (comprising items 3, 4, 12, 15, 22, 56, 64, 67, 68) and produced scores from 9 to 45. A high score on this scale represented the opinion that learning disabled people could benefit from objective and factual information about sex whilst a low score indicated the belief that information about sex would give learning disabled people wrong ideas and prompt them to engage in sexual activities.

The fourth scale assessed attitudes towards the Sexual Rights of the Learning Disabled with 12 items (5, 7, 25, 29, 30, 34, 36, 41, 44, 53, 57, 66). Scores on this scale ranged from a low 12 to a high of 60 with higher scores indicating a respect for human rights and the sexual needs of people with LD and lower scores expressing a controlling attitude towards the sexuality of the LD.

The fifth scale measured General Attitudes towards the Sexuality of the Learning Disabled with 11 items (1, 6, 10, 18, 19, 23, 37, 38, 39, 59, 63) which, could produce scores ranging between 11 and 55. Higher scores suggested respect for the developing sexuality of the LD while lower scores indicated denial of their sexuality.

The sixth scale measured attitudes towards the Acceptability of Sexual Behaviour of the Learning Disabled (comprising items 9, 11, 13, 14, 17, 24, 27, 28, 31, 32, 35, 45, 61, 65). Scores could range from 14 to 70 with higher scores indicating greater tolerance for the sexual expression of the LD and lower scores showing disapproval of any sexual expression.

The final scale reflected attitudes towards the Stereotyping of the sexuality of the Learning Disabled (comprising items 8, 20, 21, 33, 42, 50) with a range of scores between 6 and 30. Higher scores represented non-stereotyping views of the sexuality of people with LD whilst lower scores expressed stereotypes referring to the sexual development and behaviour of the LD.

Evaluation of the instrument (and missing data)

The psychometric qualities of the measure with the present sample of Greek lay people were determined in three different ways. Firstly, by calculating item-total correlation coefficients for each item of the scale; secondly by the Cronbach's alpha reliability coefficients; and finally, by factor analysis.

Two different procedures were used to deal with missing data in the present study.

An alternative to treating missing data is to simply delete any cases with missing values. If there are only a few cases that omit several values and they seem to be a random subsample of the total data set, deletion is a good alternative (Tabachnick & Fidell, 1989). However, if missing values are scattered throughout cases and variables, deletion of cases can result in substantial loss of data. As stated earlier, the alternative of deleting whole cases was applied to 10 of the 311 questionnaires that were initially returned from the participants of the present study.

Estimating missing data and then using the estimates for the analysis is another option for dealing with missing values. The three most popular approaches for this kind of estimation are: using prior knowledge, inserting mean values for the variable and using regression (Tabachnick & Fidell, 1989). Inspection of the data set of the present study revealed 69 cases with between 1 and 4 missing values. It was decided to calculate the mean from the available data on each variable in question and use it to replace missing values. According to Tabachnick and Fidell (1989) in the absence of all other information, the column mean is the best estimation of the value of the variable because the mean of the distribution as a whole does not change and the researcher is not required to guess at missing values.

The instrument used in the present study consisted of seven intuitive scales. Two of these scales were deemed to assess attitudes towards the sexuality of people without LD and five to assess attitudes towards different aspects of the sexuality of the learning disabled. It was decided that any analysis involving the items assessing general attitudes towards sexuality should be carried out separately from the analysis referring to attitudes towards the sexuality of people with LD. This analytic strategy would result in a two-part instrument measuring attitudes towards the sexuality of people with and without LD.

The decision to follow this process was based on two reasons. First, one of the main purposes of the present study was to examine whether or not there is a difference in

respondents' attitudes towards the sexuality of people with LD as compared with people without LD. It was therefore essential to employ a measure, which would serve this purpose. Secondly, the review of the literature revealed a limited number of instruments capable of assessing attitudes towards non-learning disabled and learning disabled individuals. Studies who employed those instruments revealed that respondents' attitudes differentiated according to the group they referred to and there was a need to examine sexual attitudes focusing on the learning disabled separately from those focusing on the non-learning disabled.

Items measuring general attitudes towards sexuality

Sixteen items were originally developed in order to assess general attitudes towards aspects of human sexuality. Rust and Golombok (1989) pointed out that one of the characteristics of a good test is to produce responses that spread out individuals' scores along a continuum. A larger spread is equivalent to a greater test variance. The extent to which an item is suitable to be included in a test is whether or not it makes a contribution to this variance. The above authors have suggested that for a 5-point Likert scale scored from 1 to 5 one item, which produced a mean score in excess of 4.5 or less than 1.5 failed to sufficiently differentiate between respondents.

It was therefore decided, at the first stage of analysis, to examine the means and standard deviations of these 16 items to establish the extent to which they differentiated between respondents' attitudes. Three items were not retained in the scale because of excessively high or low mean scores (16, 48 and 52). One further item (47) but it was retained in the questionnaire because it differentiated enough between respondents.

The above process resulted in retaining 13 items on the scale with a possible range of scores from 13-65. Seven of these items expressed a contemporary attitude and six items expressed a traditional attitude towards sexuality. The scores for these 13 items

were then summated and used to calculate Pearson product-moment correlation coefficient between each individual item and the total score, minus the contribution of that item. The purpose of this procedure was to determine the extent to which each item made a contribution to the scale. An item with a high item-total correlation is deemed to be measuring what the whole scale is measuring. An item-total correlation value of 0.2 has been set as a cut off point when deciding about the items that should be retained in a scale (Rust & Golombok, 1989). The calculations were repeated every time an item was deleted because it failed to produce a value over the cut off point. Four items were deleted it total (49, 54, 51 and 2) and a last set of item-total correlation coefficients (r), was calculated (see table 6 below).

Table 6: Item-total coefficients of 9 items measuring attitudes towards sexuality

Item*	r
16r	0.198
40	0.559
43r	0.337
55r	0.385
58	0.592
60r	0.576
62	0.289
46	0.341
47r	0.262
Cronbach's Alpha: 0.740, (N=301)	

* An r after the item number indicates a positively worded item in which a strong agreement is scored 5/1 and a strong disagreement is scored 1/5.

Notwithstanding the fact that the item 16: "All forms of contraception should be made available for all persons of all ages" had an item-total correlation of less than the cut-off point of 0.2, it was decided to retain this item. There were three reasons for this decision. Firstly, the correlation coefficient was extremely close to the cut-off point. Secondly, a comparison of Cronbach's alpha analyses involving 9-items and 8-items showed no beneficial increases in value of alpha if item 16 was deleted. Finally, item 16 was retained because, in general, scales with more items are more reliable than scales

with fewer items (Barker-Bausell, 1986; Oppenheim, 1992).

Cronbach's alpha. The next step of the evaluation of the scale was to subject the 9 remaining items to a Cronbach's alpha analysis in order to assess its internal reliability. This analysis produced a value of 0.74 which indicated that these items formed a relatively coherent set of items that reliably assessed general attitudes towards sexuality with the present sample of Greek lay people.

Factor analysis: Having established that these 9 items constituted an internally reliable scale it was decided to examine the construct validity of the resultant scale using the technique of principal components factor analysis (SPSS for Windows, version 8). The aim of this procedure was to find factors (hypothetical constructs) that could explain the relationships between scores on the different variables included on the scale using objective statistical techniques rather than subjective intuition. However, as Tabachnick and Fidell (1989) has argued since factor analysis is a purely mathematical procedure accounting for the numerical relationships, its application in social sciences has always been more of a conceptual tool that requires a lot of decisions about alternative options. In the present set of data it was anticipated that the use of factor analysis would result in a single factor solution which would account for as much as possible of the variance. It was also expected that the resulting factor would provide a conceptual framework of the data.

The Kaiser, Meyer, Olkin measure of sampling adequacy (KMO) yielded a value of 0.76 indicating that the data were suitable for use in a factor analysis. Bartlett's sphericity test of the attitude item response correlation matrix also supported the prerequisite assumption for factor analysis, $\chi^2 = 508.56$, $p < 0.001$ since its associated probability was not greater than 0.05 (Kinnear & Gray, 1997).

Identifying the number of factors that should be extracted is one of the most troublesome points of factor analysis. Applying Kaiser's criterion of eigen-values equal to or greater than unity, three principal factors were extracted which accounted for 22.8%,

19.5% and 14.3% of the variance. However, application of Cattell's scree test indicated that one factor could provide a more meaningful interpretation of what the scale was measuring. Table 7 below shows that factor loadings for the items ranged from a low of 0.399 to a high of 0.711, with a median loading of 0.582.

Table 7: Item loadings for the Human Sexuality factor

Item	Loading
16- All forms of contraception should be made available for all persons of all ages	0.430
40- Masturbation is morally wrong	0.690
43- The trend towards openness about sexuality in literature, films and education is a healthy movement in our society	0.582
46- Answering all the questions children ask about sex would probably result in their being preoccupied with it	0.421
47- Sex education should be taught to all people at all ages	0.399
55- Intercourse for unmarried couples is acceptable	0.642
58- Homosexuality should be illegal	0.711
60- Homosexuality between mutually consenting partners is acceptable	0.707
62- Premarital sexual permissiveness usually results in marital problems	0.488
Total variance % : 33.239	

Examination of the content of those items led to the conclusion that they concerned attitudes towards different aspects of human sexuality such as sexual education, masturbation, contraception, sexual intercourse and homosexuality. It was decided to label this factor the Human Sexuality scale. A high score on this scale represented the view that sexuality and sexual expression are healthy, it suggests greater tolerance for individual choice regarding sexual behaviour and encourages the provision of sexual information. On the other hand, a low score indicated that sexual information could encourage sexual activity, and it portrays the belief that sexual expression should be acceptable in the context of a marriage.

Items measuring attitudes towards sexuality of the learning disabled

Fifty-two out of the sixty-eight items included in the questionnaire referred to

attitudes towards the sexuality of the LD. These items were intuitively grouped together on the basis of reviewing previous literature, into five different subgroups which were thought to assess attitudes towards: sex education for the LD; sexuality of the LD; sexual rights of the LD; stereotyping the sexuality of the LD; and, acceptability of sexual expression of the LD.

At a first stage of analysis, some basic statistics were calculated in order to evaluate the extent to which each item managed to differentiate the attitudes of respondents. According to mean scores and standard deviations (sd) two items did not discriminate respondents' attitudes and as a result, they were not included in any further analysis (items 3 and 68). Another three items (5, 56, and 65) produced fairly high mean values but they were not deleted from the questionnaire because they differentiated enough among respondents (based on the item facility index). Therefore, the next stage of analysis is based on 50 items (21 positively worded and 29 negatively worded) with a possible range of scores from 50-250. The descriptive statistics of all 52 items are shown in table 8 below.

Table 8: Descriptive statistics of the 52 items measuring attitudes towards the sexuality of the LD

Item	Mean	sd
1r- All Id females living in the community should be given contraception because they may be sexually exploited	2.13	1.09
3r- Advice on contraception should be fully available to people with Id	4.40	0.69
4r- People with Id are more likely to be sexually exploited if they are denied access to sexual information	2.56	1.18
5r- Abortion should be an alternative for a Id woman if she decides that she does not want to have a child	4.13	0.88
6- Id people who live in residential facilities should have some places to express their sexuality	3.94	0.85
7r- Homosexuality between consenting Id people should be permitted	2.97	1.14
8- People with Id have greater difficulty in controlling their sexual feelings and sexual activities than others	2.16	0.86
9- Petting between two Id adults of different sexes in public is acceptable	3.46	1.03
10- The Id cannot always be held responsible for their sexual behaviour	2.23	0.85
11- Heterosexual intercourse between two consenting Id adults is unacceptable	4.01	0.91

Table 8: Descriptive statistics of the 52 items measuring attitudes towards the sexuality of the LD (continued)

Item*	Mean	sd
12r-It would be a good idea to ask Id people what they would like to learn about sex	4.19	0.82

13- It is unacceptable for a Id person to masturbate in public	4.03	0.87
14r- It is acceptable for Id adults to briefly kiss in public	3.03	1.35
15- The positions used in sexual intercourse should never be discussed, even in response to a direct question from a Id person	3.61	1.03
17- Homosexual behaviours carried out in private between consenting Id males are unacceptable	3.27	1.08
18- A Id woman cannot be trusted to use the pill reliably as a contraception	2.55	0.96
19- It is unrealistic to expect a person with Id to be capable of making decisions about their own sterilisation	2.66	1.07
20- Id women are more promiscuous than women who do not have Id	3.42	0.84
21- Id people have less need for sex than other people	3.93	0.75
22- It would not be appropriate to make contraceptive advice available to people with Id	3.69	1.18
23r-Sterilisation should only be carried out with the informed consent of the Id person	3.27	1.06
24r-Homosexual behaviours carried out in private between Id females are acceptable	3.20	1.12
25- Staff should stop Id clients from masturbating	3.58	0.90
27r-Petting carried out in private between two Id adults of different sexes is acceptable	3.94	0.98
28- homosexual behaviours carried out between consenting Id females are unacceptable	3.31	1.08
29r-Ld persons should be able to get contraceptives when they want them	4.00	0.88
30- Sexual activities between male and female people with Id should not be allowed	4.16	0.81
33- I would be worried that a Id homosexual person might corrupt other people with Id	2.63	1.10
34r-Ld people have the right to make their own decisions about their sexual life	3.55	0.88
35r-It is acceptable for Id adults to engage in prolonged kissing in private	3.84	0.98
36- Homosexual activity should not be permitted between people with Id	3.22	1.10
37r-People with Id should take responsibility for their sexual behaviour and realise that there are limits to sexual behaviour	3.49	0.97
38- Most Id people would be unable to make responsible decisions about sex	2.75	0.89
39- Drugs which reduce the sexual urge should be administered to all Id people whose behaviour sometimes indicates sexual arousal	3.19	1.08
41- The Id should be sterilised	3.68	1.05
42- Ld people usually have stronger than average sex drives	3.00	0.82
44r-People with Id have a right to an active sex life	4.02	0.67
45r-Homosexual behaviours carried out in private between Id males are acceptable	3.29	1.10
50- Ld individuals are more easily stimulated sexually than normal people	3.03	0.77
53r-Every person, Id or not has the right to have children	3.25	1.11
56r-Providing sex education for the Id helps to protect them from sexual exploitation	4.08	0.77
57- Residential facilities for the Id should keep men and women as separate as possible	3.28	0.99
59r-People with Id need times to meet with members of the opposite sex privately	3.93	0.72
61r-Masturbation in public is an acceptable behaviour for a Id person	2.12	0.92
63- Sterilisation is the only safe means of birth control for most people with Id	3.32	1.06
64- It is best to wait for the Id person to raise questions about sexuality before discussing this topic with them	3.18	1.08
65- It is unacceptable for Id adults to briefly kiss in private	4.00	0.87
66- Under no circumstances should the Id have children	2.87	1.12
67r-It is a good idea to teach people with Id how to masturbate in order to relieve tension	3.18	0.92
68r-A centre for people with Id needs a sex education programme for its clients	4.37	0.56

* An r after the item number indicates a positively worded item in which a strong agreement is scored 5/1 and a strong disagreement is scored 1/5.

In order to evaluate the accuracy of the intuitive scales with objective statistic techniques it was decided to use a Principal components factor analysis. It was

anticipated that the present analysis would confirm the intuitive structure by producing five orthogonal factors matching the original subgroups. A series of factor analyses were undertaken in order to identify those items that formed coherent scales. In the course of these analyses a number of different criteria were used in order to produce the final structure of the questionnaire. Firstly, since the intention was to develop an instrument to assess the major sub-components of attitudes towards the sexuality of the LD it was felt desirable to have a relatively small number of factors. Secondly, as stated by Rust & Golombok (1989) since in about 50% of the cases Kaiser's criterion (eigen-values equal or greater than unity) tends to produce too many trivial factors it was decided to take into account Cattell's scree test to determine the number of factors to be extracted. Factorial purity was another criterion used when deciding about the number of factors. This was achieved by subjecting the factors to a varimax rotation and examining the resulting correlation matrix. An orthogonal rotation was used in order to maximize the independence of factors from each other (Rose, 1999). An item was only retained in the resulting scale if it loaded on a factor. Simple structure (e.g. an item loads on only one factor) and conceptual interpretation of the emerging factors were used to clarify the most appropriate solution. The idea behind this was that the fewer the number of factors involved in accounting for the correlation among a group of variables the easier it is to invest those factors with psychological meaning. A general guideline also was that the emerging scales should be of an optimum length in terms of the number of items included.

A factor analysis of the fifty items resulted in 14 factors fulfilling Kaiser's criterion of eigen-values greater than unity, which explained 63% of the variance. However, Cattell's scree test indicated that four factors should be extracted, which explained a total of 36.7% of the variance. The distribution of the items across the factors did not match the intuitive sub-grouping of the items. Moreover, several items loaded across more than one factor and so simple structure was not achieved. Items 6, 12, and 14 did not load on any of the

four factors indicating that did not share variance with the factors. Therefore, it was decided that these three items should not be included in the second analysis.

Examination of the Cattell's scree test based on 47 items indicated that four factors should be extracted from the second factor analysis. When the cut-off point of item loadings on factors was set at 0.3 and above all of the items loaded on at least one of the factors and 12 of the 47 items loaded across more than two factors. With factor loadings of 0.35 and above three items did not load on any factor and five items loaded across more than one factor. Finally, when factor loadings of 0.40 and above were considered seven items did not load on any factor and one item loaded on more than one factor. Inspection of this last solution indicated that one of the four factors clustered together seven items referring to the issue of homosexuality. However, the grouping of the rest of the items did not produce any conceptual interpretation of their meaning that could support the existence of three other separate factors. On the basis of these complex results it was decided to use factor loadings of 0.35 as they seemed to produce the best way forward.

Based on the above results of the factor analysis it was decided to delete items 9, 29 and 67 that did not load on any factor and subject the remaining 44 items to a new factor analysis. Cattell's scree test did not produce such a clear picture regarding the number of factors that should be extracted. It was then decided to extract four factors and examine first, whether or not the resulting solution provided a simple structure and second, try to generate some psychological interpretation of the factors.

With factor loadings of 0.35 and above all 44 items loaded on at least one factor but five items did not produce a simple structure (i.e. they loaded on more than one factor). When item loadings of 0.4 and above were considered four items did not load on any factor whereas only one item loaded on more than one factor. One of the four factors appeared again to contain items referring to the issue of homosexuality but conceptual

interpretation of the rest was still not clear.

As this latter analysis produced the clearest picture it was used as the basis for the next analysis. Items 5, 10, 61, 64 were deleted and the remaining 40 items were subjected to a new analysis. The Cattell's scree test was quite similar to the one produced in the analysis based on 44 items showing that either four or three factors could be extracted.

A four-factor solution resulted in seven items that loaded on more than one factor when a cut off point of 0.35 was used. Moreover, with so many items not producing a simple structure it was not easy to make a psychological interpretation of the factors although the third factor remained unchanged referring to the issue of homosexuality. It was then decided to extract three factors and examine their conceptual meanings. With factor loadings greater than 0.35 two items did not load on any factor and two more did not produce a simple structure. On the other hand, when factor loadings greater than 0.40 were considered seven items did not load on any factor and one item loaded on two factors.

The three-factor solution with item loadings greater than 0.35 provided the closest to simple structure and to a conceptual interpretation of the factors. The third factor did not change its structure and the other two started to provide some hints about their nature. It was therefore decided to repeat another analysis excluding items 4 and 23 that did not load on any factor. Application of Cattell's criterion to the new analysis produced a three-factor solution. With item loadings greater than 0.35 all 38 items loaded on at least one of the factors but items 34 and 63 did not produce a simple structure and were excluded from further analysis.

In a last effort to achieve simple structure and retain the meaningful interpretation of the three factors data were subjected to another analysis based on the 36 items that loaded on a single factor. Application of the scree test produced a three-factor solution

and with item loadings greater than 0.35 every item loaded on one of the extracted factors.

The result of this last analysis was accepted as the final solution because it fulfilled the criteria set at the beginning of the analytic process. It provided factorial purity where three factors produced a simple structure and a conceptual interpretation of their meanings. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) yielded a value of 0.86, which indicates that the data were suitable for use in a factor analysis. Bartlett's sphericity test of the correlation matrix supported the prerequisite assumption for factor analysis, $\chi^2 = 3989.50$, $p < 0.001$ (Kinnear & Gray, 1997). Item loadings for each factor are shown in table 18. The factors were named by paying particularly attention to the highest loading items. It should be remembered that high scores indicated contemporary attitudes and low scores traditional attitudes towards the sexuality of the LD.

Factor I – This factor consists of 15 items referring to different aspects of the sexual life of the LD and accounts for 13.97 % of the common variance. Acceptability of various sexual activities carried out by the LD and acknowledgement of their feelings (items 11, 13, 21, 25, 27, 30, 31, 32, 35, 44, 59, 65) is a major issue for people who score high on this factor. Access to sexual knowledge (items 15, 56) and to birth control methods (item 22) are both seen as a way to protect LD persons from exploitation and give them the chance to enjoy a sexual relationship. This factor was called *Acknowledgement of the sexuality of the LD*.

Factor II – Factor II is a dimension accounting for 12.56 % of the variance and it was not easy to interpret. It contains 14 items reflecting stereotypically negative views about the sexual development of the LD (items 8, 18, 19, 20, 38, 42, 50) and controlling attitudes towards any sexual expression by them (items 39, 41, 53, 57, 66). It conveys a feeling of bias and general prejudice against the role of sexuality in the lives of the LD (items 1 and 37) and thus, it was named *Discrimination against the sexuality of the LD*. As a result, people scoring high on this factor support the view that the LD have sexual

feelings and deal with them providing that they are given the chance to do so. On the other hand, those who score low believe that the LD are not capable of dealing with any aspect of their developing sexuality.

Factor III – The last factor addresses the issues of homosexuality and accounts for 12.31 % of common variance. It contains 7 items, which draw attention to the acceptability of homosexual activities carried out by people with LD (items 7, 17, 24, 28, 36, 45) and the effect that any contact with a homosexual might have on a LD person (item 33). Those 7 items have been clustered together throughout the whole factor analytic process and this fact lead to the conclusion that it is a robust factor. Since all items were associated with the issue of homosexuality it was decided to call this factor *Homosexuality among the LD*. A high score on this factor suggests an acceptance of homosexuality expressed by the LD whereas a low score reflects that homosexual activities amongst the LD are unacceptable.

Table 9: Item factor loadings, item-total coefficients (r) and Cronbach's alpha (N=301)

Item*	Factors			r
	I	II	III	
11- Heterosexual intercourse between two consenting Id adults is unacceptable	0.652			0.597
13- It is unacceptable for a Id person to masturbate in public	0.563			0.554
15- The positions used in sexual intercourse should never be discussed, even in response to a direct question from a Id person	0.504			0.530
21- Id people have less need for sex than other people	0.446			0.387
22- It would not be appropriate to make contraceptive advice available to people with Id	0.374			0.360
25- Staff should stop Id clients from masturbating	0.372			0.399
27r- Petting carried out in private between two Id adults of different sexes is acceptable	0.537			0.441
30- Sexual activities between male and female people with Id Should not be allowed	0.709			0.648
31r- Heterosexual intercourse between two consenting Id adults is acceptable	0.593			0.484
32- It is unacceptable for Id to engage in prolonged kissing in public	0.429			0.443
35r- It is acceptable for Id adults to engage in prolonged kissing in private	0.609			0.583
44r- People with Id have a right to an active sex life	0.554			0.505
56r- Providing sex education for the Id helps to protect them from sexual exploitation	0.359			0.239

Table 9: Item factor loadings, total coefficients (r) and Cronbach's alpha (continued)

Item*	Factors			r
	I	II	III	
59r- People with Id need times to meet with members of the opposite sex privately	0.422			0.282
65- It is unacceptable for Id adults to briefly kiss in private	0.541			0.551
1- All Id females living in the community should be given contraception because they may be sexually exploited		0.582		0.477
8- People with Id have greater difficulty in controlling their sexual feelings and sexual activities than others		0.441		0.311
18- A Id woman cannot be trusted to use the pill reliably as a contraception		0.548		0.457
19- It is unrealistic to expect a person with Id to be capable of making decisions about their own sterilisation		0.656		0.592
20- Id women are more promiscuous than women who do not have Id		0.473		0.406
37r- People with Id should take responsibility for their sexual behaviour and realise that there are limits to sexual behaviour		0.382		0.329
38- Most Id people would be unable to make responsible decisions about sex		0.534		0.498
39- Drugs which reduce the sexual urge should be administered to all Id people whose behaviour sometimes indicates sexual arousal		0.525		0.523
41- The Id should be sterilised		0.587		0.536
42- Id people usually have stronger than average sex drives		0.488		0.323
50- Id individuals are more easily stimulated sexually than normal people		0.544		0.389
53r- Every person, Id or not has the right to have children		0.562		0.486
57- Residential facilities for the Id should keep men and women as separate as possible		0.477		0.497
66- Under no circumstances should the Id have children		0.668		0.606
7r- Homosexuality between consenting Id people should be permitted			0.755	0.710
17- Homosexual behaviours carried out in private between consenting Id males are unacceptable			0.762	0.737
24r- Homosexual behaviours carried out in private between Id females are acceptable			0.781	0.711
28- Homosexual behaviours carried out between consenting Id females are unacceptable			0.773	0.680
33- I would be worried that a Id homosexual person might corrupt other people with Id			0.486	0.410
36- Homosexual activity should not be permitted between people with Id			0.771	0.751
45r- Homosexual behaviours carried out in private between Id males are acceptable			0.703	0.652
Cronbach's alpha	0.834	0.831	0.878	

Item-total correlation coefficients. The next step of the analysis was to examine the internal validity of the resulting scales. Respondents' scores for each item were summated and used to calculate Pearson product-moment correlation coefficient between each individual item and the total scale score, minus the contribution of that item. An item with a high total correlation is deemed to be measuring what the whole scale is measuring

and thus, making a contribution to the scale. Table 9 above shows that all items produced correlation values above 0.2, $p < 0.01$ verifying the psychometric quality of each item (Rust & Golombok, 1989).

Cronbach's alpha. In order to assess the internal reliability of the underlying dimensions of the questionnaire all the items in each scale were subjected to a Cronbach's alpha analysis. Cronbach's alpha was not calculated for all 36 items because they do not represent an additive unitary construct but a construct with multiple dimensions. The results of the analysis can be found in table 9 above and showed a value of 0.834 for the Acknowledgement of the sexuality of the LD scale, of 0.831 for the Discrimination against the sexuality of the LD scale and of 0.878 for the Homosexuality among the LD scale. These high values indicated that each scale contained a relatively coherent set of items that reliably assessed attitudes towards the sexuality of people with LD.

Test-retest reliability.

The consistency of responses over time of the two parts of the GSAQ-LD was estimated by assessing their test-retest reliability. Data were collected from a convenience sample of 27 Greek students of Keele University at two different points of time with a two-month interval between the administrations. The consistency of the scores between the two different times is a measure of reliability (Barker-Bausell, 1986) and it is expressed as a correlation between first and second scores (Elmes et al, 1995). The test-retest correlation values were acceptably high for all four scales. Table 10 below shows the mean scores (\bar{x}) and correlation values (r) for the four scales at both points of time.

Table 10: pre-test and post-test means and coefficients for each scale

Scale	ξ pre-test	ξ post-test	r
Human Sexuality	36.90	36.70	0.799
Acknowledgement	60.41	60.93	0.640
Discrimination	46.37	47.09	0.715
Homosexuality	25.71	26.81	0.543

Conclusion

Overall, the evaluation process of the instrument that involved examination of means and standard deviations, item-total correlation coefficients, Cronbach's alpha, and factor analyses provided evidence that the 45 items included in the questionnaire represented four different scales. Those scales reliably assessed attitudes towards Human sexuality, Acknowledgement of the sexuality of the LD, Discrimination against the sexuality of the LD and attitudes towards Homosexuality amongst the LD. From this point onwards the present measure will be referred as the Greek Sexuality Attitudes Questionnaire - Learning Disabilities (GSAQ-LD).

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