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Abstract

Although the great majority of research studies on cyberbullying have been carried out in western countries (Zych, Ortega & del Rey, 2015), the issue is recognised to be an international one. There has been a tradition of research in the Asian Pacific Rim countries (Smith, Kwak & Toda, 2016), and growing research in other areas such as South-East Asia (Sittichai & Smith, 2015). These studies raise important methodological issues. How similar, or different, is the phenomenon of cyberbullying in different countries? What are the challenges in making comparisons and comparing rates in different countries? Finally, how can such differences be explained? This chapter will examine societal and cross-national variations in bully and victim rates, and characteristics (such as age and gender differences, types of cyberbullying), across a wide range of countries. Explanations of cross-national differences will be discussed in terms of the five factors in the EU Kids Online model: Cultural values [e.g. Hofstede], Education system [schools, colleges], Technological infrastructure [penetration of mobile phones, smart phones and internet], Regulatory framework [policies, legal aspects] and Socio-economic stratification [GDP, socioeconomic inequality].

Cyberbullying in Schools: Cross-Cultural Issues

Over the last two decades, research into cyberbullying has gained momentum as researchers endeavour to consider and understand the nature of the behaviour and its wider reaching impact on all concerned. There is not universal agreement on the definition of bullying, but there does exist some consensus that it is aggressive behaviour, intended to hurt or harm another, with two further criteria: repetition – the hurtful behaviour happens more than once; and power imbalance - it is difficult for the victim to defend himself or herself (Olweus, 1999; Smith, 2014). Cyberbullying is usually defined by extending the above to electronic communication media; however, the latter two criteria, i.e., repetition and power imbalance, are particularly debated when it comes to the definition of cyberbullying (Slonje, Smith, & Frisén, 2013).

Cyberbullying has been recognised as an international issue with much of the research having been conducted within North America, Europe and Australia (Smith & Berkkun, 2017; Zych, Ortega & del Rey, 2015). However, there has been a tradition of research in the Asian Pacific Rim countries (Smith, Kwak & Toda, 2016), and growing research in other areas such as South-East Asia (Sittichai & Smith, 2015) and India (Smith et al., in press) whilst there is a scarcity of research on the phenomena in the Global South (Livingstone, Stoilova & Kelly, 2016).

Cyberbullying and victimization tend to be most prevalent among school aged children and young adults (Sevcikova & Smahel, 2009). They often occur outside of school (Migliaccio & Rauskauskas, 2015; Monks, Ortega, Robinson & Worlidge, 2009; Smith et al., 2008), perhaps as a result of restrictions schools have in place, such as firewalls and the blocking of certain content or key words (Tomazin & Smith, 2007; UK Safer Internet Centre, 2017).

Country Differences in Cyberbullying Rates

A few studies have compared rates of cyberbullying in a small number of countries. For example, Genta et al. (2012) reported on cyberbullying among 12 to 15 year olds in Italy (*n*=1,964, 39 schools), England (*n*=2,227, 14 schools), and Spain (*n*=1,671, 7 schools). They compared mobile and internet cyberbullying over the previous two months, using a definition consistent with that suggested by Olweus (1999). Percentages for severe (two or three times a month or more) mobile bullying perpetration ranged across the three countries from 0.9 to 2.7%, and internet bullying from 1.0 to 1.6%, for mobile victimization from 0.5 to 2.2%, and internet victimization from 1.3 to 2.6%. Country differences varied by type of involvement, with Italy consistently having the highest rates for both victimization and perpetration.

Aoyama, Utsumi, and Hasegawa (2011) assessed cyberbullying in Japanese and US high school samples and found both cyber perpetration and victimization rates to be higher in the United States. Similarly, Barlett et al. (2014) gathered data from college-aged participants in the United States (*n* = 293) and Japan (*n* = 722) (number of institutions not specified). Rates were higher in the United States for all measures – cyberbullying perpetration, reinforcement, and positive attitudes to cyberbullying.

Wright et al. (2015) examined differences in cyber aggression perpetration and victimization among 1,637 adolescents living in China (*n*=683, 2 schools), India (*n*=480, 6 schools), and Japan (*n*=474, 2 schools). Adolescents from India had the highest levels of cyber aggression involvement when compared to adolescents from China or Japan. Chinese adolescents engaged in more cyber aggression perpetration and were victimized more by cyber aggression when compared to Japanese adolescents.

However, there are two large-scale surveys which provide self-reported rates of cyberbullying across a large number of countries. These are the EU Kids online survey (EUKO)

across 25 European countries, and the Health Behaviour of School-aged Children survey (HBSC), carried out every four years from 42 countries mainly from Europe and North America. EUKO provided data from 2010 on cyberbullying perpetration and cyber victimization (Livingstone, Haddon, Görzig, & Ólafsson, 2011a). Although HBSC surveys have been going since 1993, only the most recent survey of 2013/2014 included two questions on cyber victimization (Inchley et al., 2016). Other cross-national surveys that include questions on bullying, namely the Global School Health Survey (GSHS), Trends in International Mathematics and Science Study (TIMSS), and Programme for International Student Assessment (PISA), do not include questions on cyberbullying or refer to it in any definition given.

Smith, Robinson and Marchi (2016) examined concordance across country differences for bullying generally, amongst EUKO, HBSC, GSHS and TIMSS; although within survey correlations (across ages, genders, survey periods) were high (around 0.8, 0.9), across survey correlations were much more modest; the highest was 0.57, and most were around 0.2-0.4. Smith and López-Castro (2017) calculated how PISA compared with the other surveys. Correlations obtained were generally more acceptable than in the previous comparisons, and especially satisfactory for comparing PISA with TIMSS (correlations around 0.8, comparable to within survey correlations). This may be because both are behaviour-based rather than definition-based surveys.

In this chapter, we report on comparisons between EUKO and HBSC, specifically as regards rates of cyber victimization. We first give an account of each survey, and the range of country rates reported. We then discuss some of the challenges in comparing country rates, both within a survey, and between surveys. This is followed by some discussion of how country

differences in cyberbullying rates might be explained. Finally, we make suggestions for future research in this area.

The EU Kids Online Survey and What It Found

Livingstone et al. (2011a) reported findings on traditional bullying and cyberbullying from 25 European countries, from the EU Kids Online survey carried out in spring/summer 2010. The samples were based on random stratified sampling of some 1,000 children, aged 9 to 16 years old, in each country. Self-report survey questionnaires were given face-to-face in children's homes. The survey was on internet use, risks, and safety. A section on bullying did not use the term 'bullying', but started with a statement:

> Sometimes children or teenagers say or do hurtful or nasty things to someone and this can often be quite a few times on different days over a period of time. For example, this can include: teasing someone in a way this person does not like; hitting, kicking or pushing someone around; leaving someone out of things.

The interviewer explained that these activities could be face-to-face, or via mobile phone calls or texts, or on the internet. With regards to the Olweus-type definition, a range of activities was, therefore, covered, as well as the repetition criterion, although the imbalance of power criterion was not explicitly mentioned (Slonje et al., 2013). The child or young person was then asked whether someone had acted in this hurtful or nasty way to them in the past 12 months (response options: 'yes', 'no'). Following on from this, they were asked if they themselves had acted in a hurtful or nasty way to others in the last year. If so, they were asked how this had happened.

The majority of bullying reported was face-to-face, but taking any time over the past 12 months, 6% said they had acted in that kind of way on the internet, and 3% by mobile phone calls

or messages. Both these percentages showed a steady rise with age, from 9 to 16 years. Taking part in bullying others by the internet averaged 3% and by mobile phones 2%. Across the entire sample of European countries, being a victim of cyberbullying via the internet, although averaging 6%, varied by country. The range was from 2% in Italy up to 14% in Estonia.

The Net Children Go Mobile project in 2013 used a follow up version of the EUKO questionnaire in 7 of the 25 countries (i.e., Denmark, Italy, Romania, the UK, Belgium, Ireland, and Portugal) which involved a random stratified sample of approximately 500 internet using 9-16 year old children per country. A similar definition of bullying was used as in the EUKO questionnaire; however, response options were changed to include levels of being upset: 'Yes, and I was very upset', 'Yes, and I was a little upset', 'Yes, but I was not at all upset', 'No, I haven't experienced this'. Victim rates of cyberbullying via the internet ranged from 5% in Portugal to 21% in Denmark. In all countries, victimization rates were somewhat higher than for the EUKO survey conducted in 2010 within the same country, the average increasing from 9% to 12% (Mascheroni & Cuman, 2014).

Using a similar survey, the Latin Kids Online project in Brazil found that 9%, 12% and 15% reported being victims of online bullying in 2012 (n = 1,580, 9-16 year olds), 2013 (n = 2,261, 9-17 year olds) and 2014 (n = 2,105, 9-17 year olds), respectively (Brazilian Internet Steering Committee, 2015).

The HBSC 2013/2014 Survey and What It Found

The HBSC surveys collect data from 11, 13 and 15 year-olds from nationally representative samples every four years, starting in 1993/1994: there is a minimum of 1,500 respondents per age group annually in each participating country. These are classroom-based, anonymous, self-report questionnaire surveys. The reports on bullying have been based on a single victim item and a single

bully item, adapted from the Olweus questionnaire, which asks about experiences over the past couple of months, with five standard response options. Victim or bully rates are usually calculated from 'at least two or three times in the past couple of months' or more (thus ignoring 'it only happened once or twice'). A standard definition of bullying is given (mentioning repetition and imbalance of power).

In the most recent survey from 2013/14, HBSC included two additional questions on being a victim of cyberbullying. These were whether someone sent mean instant messages, wall-postings, emails and text messages or created a website that made fun of them; and whether someone took unflattering or inappropriate pictures of them without permission and posted them online. Responses to the first question were analysed and presented in Inchley et al. (2016), on the basis of being a victim at least two to three times a month. For 11 year olds, the mean value was 3.5%; for 13 year olds, 3.5%; and 15 year olds, 3%. However, there were large country differences. Several countries, such as Greece and Armenia, have low rates of 1% or 2% at each age. Others, notably Russian Federation, Greenland, and Lithuania (the top three at each age group) report rates of around 9%, 8% and 6% at the three age levels, respectively. In the Annex to the report, data are also provided for rates using the more lenient criterion of being bullied at least once in the past couple of months. This then yields higher prevalence rates. Countries such as Greece and Iceland reported rates of around 3% to 7% (at different ages), whereas countries such as Greenland and Lithuania reported rates of around 20% to 32% (at different ages).

The Annex to Inchley et al. (2016) also provides some data on the second question. For being a victim at least two to three times a month, the average rates were 2%, 3%, and 2% at each age (11, 13 and 15 years). This varied from lows of 0% and 1% in countries such as Greece, to highs of around 5% to 8% in countries such as Bulgaria and Russian Federation. For the criterion of at

least once in the past couple of months, the average rates were 7%, 9% and 9% at each age range. This varied from lows of 2% in countries such as Greece, to highs of around 18% to 20% in countries such as Russian Federation and Lithuania.

Gender Differences

The area of gender differences in cyberbullying has been accurately described as "fraught with inconsistent findings" (Tokunaga, 2010, p. 280). In their meta-analysis, Kowalski, Giumetti, Schroeder, and Lattanner (2014, p. 54) did not enter gender as a main predictor of cyber perpetrator or victim rates, but did conclude that "further research is needed in this area to understand the role that gender plays". In a review of 109 research articles, Barlett and Coyne (2014) found that, for cyberbullying perpetration, overall males did more than females, but this varied by age: up to early adolescence females did more than males, then, in later adolescence, males did more than females. Besides age, another factor may be type of technological resource by which the cyberbullying takes place (Kowalski et al., 2014). As regards being a victim of cyberbullying, Bauman, Toomey and Walker (2013) suggest no difference in the proportion of males to females reporting involvement. Examples can be found of boys being more involved than girls (e.g., Calvete et al., 2010), few or no significant differences (e.g., Smith et al., 2008), and girls being more involved than boys (e.g., Rivers & Noret, 2010). The usual finding is that boys are more often involved as victims of traditional bullying (Cook et al., 2010), so there may be relatively greater involvement of girls in cyberbullying, just as there is in relational bullying, when compared to traditional physical (mainly boys) or verbal bullying, which is consistent with seeing cyberbullying as more similar to relational bullying.

Gender ratios for cyberbullying do vary by country. Smith, López-Castro, Robinson and Görzig (submitted) analysed the data from EUKO and HBSC to provide ratios for male and female

rates for reported cyber victimization (here a ratio of 1 signals equality, more than 1 a male preponderance, and less than 1 a female preponderance). The EUKO data show that girls report more often being a victim of cyberbullying than boys (the boy/girl ratio is 0.78, t= -4.78, p<.001 over 25 countries; Smith et al., submitted; by contrast the ratio for being an offline victim is 1.07, t=1.80, n.s.). The HBSC data from 2013/14, however, show that boys are more often cyber victims at 11 years (ratio is 1.22, t=2.41, p<.05). This reverses at 13 years (ratio is 0.88, t= -1.44, n.s.) and then reverts to boys more often at 15 years (ratio 1.06, t=0.68, n.s.), but both of the latter were non-significant over the 42 countries involved.

Country Differences

We noted earlier that Genta et al. (2012) found rates of cyber victimization higher in Italy than in England or Spain; yet, Italy came out lowest of all the EU countries sampled (including England and Spain) in the EUKO survey. This signals up the issue of possible discrepancies between surveys as regards country differences in this area.

Previous research findings for both EUKO and HBSC reported country/regional differences in response rates for cyber victimization. It would not be unreasonable to expect that countries would be ranked similarly across these two surveys, given that both are based on self-report data from children of broadly similar ages. However, which countries appear as high or low on cyber victimization are rather different when comparing the two surveys. Data were obtained from the websites of the surveys; plus, for EUKO, from Livingstone, Haddon, Görzig, and Ólafsson (2011a,b), supplemented by additional data from the EuKidsOnline team. Table 1 shows the correlations obtained across countries (for the 21 countries they have in common), of the EUKO prevalence measure in each country, with the HBSC prevalence measures for the three ages, and for males and females separately. For example, the top left figure of 0.19

indicates a quite small but positive correlation, across countries, between the EUKO figures and the HBSC figures for 11 year old males – the two surveys tended to agree, but only slightly, on which countries scored high on cyber victimization for this group, and which countries scored low.

Table 1 about here

The pattern of correlations across countries between EUKO and HBSC is broadly similar for males and females, but varies more by age. For 11 year olds, the correlations are small but positive. However, for 13 year olds and 15 year olds, they are even smaller, but negative. None of the correlations approach significance. These correlations are surprising and disappointing bearing in mind that EUKO and HBSC have 21 countries in common. However, a lack of consensus between EUKO and HBSC for victimization rates in bullying generally had been previously noted by Smith, Robinson and Marchi (2016). Possible reasons are considered below.

As regards gender differences, a comparison between EUKO and HBSC across 21 countries for gender ratios yields correlations of 0.16 for 11 year olds, 0.03 for 13 year olds, and 0.21 for 15 year olds. None of these approach significance. There is essentially very little agreement on gender differences across countries in these two surveys.

The strength of these two surveys is their similarities, in that they have large data sets (1000 participants minimum per country/region), and that there is sufficient overlap of those countries to facilitate, examine and make comparisons for each country/region. Both surveys collected data on victim rates through the completion of self-report questionnaires. So what might explain the differences/discrepancies in their findings? In fact, a number of challenges face researchers examining cross-national differences. There are challenges even comparing

within a survey, and these are augmented when comparing different surveys. We discuss both these sets of issues in turn.

Challenges in Examining Country Differences Within a Survey

Sampling issues and non-response rates. Procedural differences between countries in survey methodology can cause non-random or systematic variations in the data, which can be problematic for the interpretation of cross-national differences. Sampling methods between countries can differ due to appropriate cultural practices. For the EUKO survey, for example, address selection methods differed between countries. A random walk technique was used for most countries, which is the random selection of a seed address from which the interviewer proceeds in a pre-defined route to select the next addresses. For some countries, where the population density was very low, the random walk technique was impractical, so it was complemented by preselecting households from national registers and/or using telephone rather than face-to-face recruitment. Different address selection methods may then imply different degrees of sample representativeness as well as differing causes for non-response.

Response rates can be a source of unaccounted for cross-national differences. There are several sources for non-response and each of them may be susceptible to cultural differences impacting on cross-national differences in survey estimates such as for cyberbullying. Non-response can occur upon making first contact with the potential respondents (contact rates) and when obtaining consent to complete the survey (cooperation rates). In the example of EUKO, contact rates ranged from 31% in Germany to 89% in Romania and cooperation rates from 36% in the Netherlands to 100% in Poland and Greece. Overall response rates ranged from 17% in the Netherlands to 83% in Romania. Some of this variation was related to differences in fieldwork

procedures between countries, such as using preselected address registers versus a random walk technique and the number of interviewers employed in each country (Görzig, 2012).

A further related issue is missing responses to the particular survey question addressing cyberbullying. Again, there can be variation in those missing responses between countries that may be associated with methodological issues (e.g., was the parent/guardian present during the interview) or cross-cultural differences in social desirability or other factors not necessarily related to the issue of cyberbullying. To complicate matters, those children whose address could not be contacted, who did not cooperate in the survey and /or chose not to indicate whether or not they have been a victim of cyberbullying may be more likely to be a victim in some countries and more likely to not be a victim in other countries, making it impossible to appraise the impact of those missing responses on the cross-national differences in cyberbullying reported by the survey.

In the example for EU Kids Online above, measures for sampling methods and response rates showed only a few statistically significant and mostly unproblematic relations between fieldwork indicators and sampling procedures – although the associations with country estimates for cyberbullying were not specifically addressed (Görzig, 2012). Other surveys, such as HBSC, show similar issues of cross-national variations in sampling methods, response rates and missing responses (Currie et al., 2014). Hence, as unavoidable for most cross-national surveys, country comparisons for both surveys suffer from a certain degree of inaccuracy. Moreover, there will be differences between surveys in the way that those issues affect them, contributing further to cross-survey variations in country differences (Harkness et al., 2010).

Linguistic issues. Questionnaires are normally given in the native language of the country concerned. A particular issue will be how a word such as *bullying* is translated, since it is

a word with a rather precise definition which often has no close equivalent in many other languages (Smith et al., 2002). The HBSC questionnaires use the term *bullying* and give an Olweus-type definition, but no information is provided about how *bullying* is translated in each country. This can make a difference. In Italy, for example, in early research on bullying, terms such as *prepotenza* were often used. This yielded quite high rates of 'bullying', but *prepotenza* has a broader meaning spectrum than *bullying* and picked up more behavioural episodes. Researchers and also the general public in Italy now use the term *il bullismo,* which is defined in the same way as *bullying* (Menesini, 2000). EUKO does not use the term *bullying*, but even words or phrases such as *teasing* or *hurtful or nasty things* may have different shades of meaning when translated into different languages.

Setting and social desirability. Survey responses may be affected by differences in perception/response rather than in the phenomenon itself. Guillaume and Funder (2016) review a number of such challenges. Administration bias refers to how aspects of the setting and administration of the survey may impact differently depending on culture - for example, what the physical setting is like, whether testing is on- or off-line, and how the presence and attitude of the researcher may affect responses. Response styles refer to how participants may tend to give socially desirable responses, or how they use scales or engage in extreme responding; these may vary by culture. Responses may also be influenced by reference group effects, whereby one compares oneself to the norms of the culture one is in. Administration procedures (see below) may also interact with country comparisons if they are not consistent across different countries in the survey.

Challenges in Examining Country Differences Between Surveys

There are a set of further issues involved in comparing different surveys, which may account for the discrepancies in findings between EUKO and HBSC. These include age range, sampling issues, dates of surveys, administration of survey, definition of cyberbullying, time reference period, types of cyber victimization assessed, and frequency scale.

Age. EUKO gathered data from young people ranging from the ages of nine to 16, while HBSC collected data from more specific age groups (i.e. 11, 13 and 15 year olds, with boys and girls separately). Thus, both surveys collected data from young people primarily at secondary school level; however, EUKO also collected data which includes students at primary school level (aged 9-10 years old). If countries differed in terms of how age related to risk of cyber victimization, this would lead to discrepancies.

Sampling issues. Both surveys collected data from relatively large samples. EUKO had about 1000 participants per country. HBSC had a minimum of 1500 participants per country; a nationally representative sample was drawn and, where it was not possible, a regional one was drawn (Roberts et al., 2009). Notably, EUKO only sampled young people with access to the internet; this was not a participation criterion for HBSC. Although internet penetration is now very high in most countries, it does vary; for example, during the EUKO survey period, it was estimated to vary from 55% in Italy, 87% in France, to 98% in the UK (Livingstone et al., 2011b). Countries low in internet penetration might yield lower cyber victimization rates in HBSC (where those without internet would be included) than in EUKO (where they would be excluded).

Dates of the survey. EUKO data collection was in 2009/2010 and the latest HBSC survey in 2013/2014. While only 4 years apart, it could be that increasing awareness of intervention and prevention programmes impact on the prevalence of victimization over time

(see for example Waasdorp, Pas, Zablotsky, & Bradshaw, 2017, for an example of longitudinal change in Maryland, USA). Especially as regards cyberbullying, technological advances with young people having much easier access to the internet via smart phones and tablets and freer access to all sorts of cyber platforms, may also affect countries differentially over even a 4-year period.

Even when dates of surveys are similar, regional or national events in a country may impact on survey responses (cf. Stoop, 2007); these might be new legal requirements, or new national anti-bullying interventions, for example.

Administration procedures. If procedural issues vary by country, they may impact on cross-national differences in cyberbullying. These include the type of interview administration (e.g., paper and pencil or computer-administered), and the timing and length of the fieldwork period (e.g., school term or holiday periods). For example, computer based questionnaires mostly contain automatic routing while, in paper and pencil version, the respondent needs to filter out irrelevant content themselves. This means that, in some countries, children, who previously responded they had not been bullied at all, may not have been exposed to the follow up question on cyber victimization while in other countries all children will have received that question. As another example, if children were interviewed during the school holidays, responses may have been lower due a reduced interaction with their peers in general. If the fieldwork took place during school holidays for some countries but not others, responses might not be equally comparable.

Both EUKO and HBSC surveys were completed using pupil self report; however, there were differences in how these self-report surveys were administered. HBSC conducted whole school administrations with questionnaires that were long and contained questions covering

many health and educational related topics. Respondent fatigue could be a factor, which might vary by country. Also, HBSC surveys were completed by the young person in class. Being in the presence of peers that may have been involved in cyberbullying episodes with the respondent might have an impact on responses, despite whatever precautions regarding confidentiality are taken. In contrast, EUKO conducted face-to-face interviews with the young person followed by a self-report questionnaire. These interviews were usually conducted in the young person's home with a parent present in the vicinity as part of the survey, and it is possible that this parental presence had an impact on responses from the young person.

Definition of cyberbullying. EUKO and HBSC differed in how they asked about bullying and cyberbullying. In particular, the imbalance of power aspect in the Olweus definition used by HBSC was absent from the preamble provided by EUKO. Repetition and power imbalance are widely considered as defining criteria for bullying, but are debated when it comes to the definition of cyberbullying (Slonje et al., 2013).

Time reference period. For EUKO, the time reference period was the past 12 months. For HBSC 2013/14, the time reference period was the last couple of months. Time reference period obviously impacts on prevalence rates, but may also impact on the kinds of incidents reported; a pupil may preferentially report serious impact events if asked about a long time period, but regard less serious incidents as more relevant if the time reference period is short (Schwarz & Oyserman, 2001). Time reference periods may also interact with age, with younger children usually taking shorter time spans into account than older children. What is particularly at issue here is whether the effect of these variables may differ by country – for example, drawing on Hofstede categories, is time reference period going to have more of an influence in long-term orientation societies?

Types of bullying assessed. EUKO participants were asked if "someone acted in this kind of hurtful or nasty way to you in the past 12 months?" by mobile phone (text, calls, image/video texts) or on the internet (social networking sites, instant messaging, email, gaming websites, chat room, some other way on the internet). HBSC asked if they had been a victim through someone sending mean instant messages, wall-postings, emails and text message or had created a website that made fun of them; or if someone took unflattering or inappropriate pictures of them without permission and posted them online. While for the EUKO survey, it was made explicit that "this kind of hurtful or nasty way" included "leaving someone out of things", social exclusion is not explicitly pronounced in the HBSC items. In contrast, the HBSC includes "inappropriate pictures", while the EUKO survey dedicated other sections of the questionnaire to sexual images and sexual messages that are separate from the bullying section.

We know that the relative frequency of different types of bullying does vary between countries – for example, between England (more physical) and Japan (more relational) (Kanetsuna, 2016). Clearly, if surveys weight different types of bullying to different extents, and countries vary in this too, some survey discrepancies will result.

Frequency scale. Both surveys used frequency scales to report victim experiences, but they differed slightly. EUKO participants are asked to choose one of six options: every day or almost every day, once or twice a week, once or twice a month, less often, never or don't know. HBSC participants are asked to choose one of five options: I have not been bullied in this way in the past couple of months; only once or twice; 2 or 3 times a month; about once a week; several times a week. While probably a minor factor, this could cause survey discrepancies if countries vary in the way cyber victim responses are distributed along the frequency spectrum.

Explanations for Country Differences

Even though agreement on country differences between EUKO and HBSC is very low, it appears that there are large country differences. How might they be explained? We suggest that the model proposed by EUKO, and shown in Figure 1, can be a useful way forward. Put forward as a framework for looking at internet risks, it is suitable for looking at causes of cyberbullying at various levels. Adopting an ecological perspective, it includes factors about the individual user, their social network (parents, peers, school), and broader country factors.

Figure 1 about here

The country level comprises five aspects: Cultural values (e.g., power distance, tradition, benevolence, individualism vs. collectivism); Education system (e.g., levels by age, grade retention, class groupings, school and class size, structure of school day, break times and supervision); Technological infrastructure (e.g., penetration of mobile phones, smart phones and internet); Regulatory framework (e.g., school policies, legal aspects, anti-bullying initiatives); and Socio-economic stratification (e.g., income, internet access, health, crime). We consider these in turn. There is rather little evidence directly related to cyberbullying, so we also mention evidence related to traditional bullying, given the large overlap between the two (Kowalski et al., 2014).

Cultural values (e.g., power distance, tradition, benevolence, individualism vs. collectivism). Hofstede, Hofstede, and Minkov (2010) proposed 6 main dimensions of cultural values: power distance, individualism-collectivism, masculinity-femininity, uncertainty avoidance, long-term orientation, and, indulgence vs. restraint. Predictions can be made about how these affect bully and victim rates (Campbell et al., in press ; Smith, Kwak & Toda, 2016). For example, victim and bully rates are predicted to be higher in more individualist (IDV) societies (less social cohesion: Ji et al., 2016). In contrast, Migliaccio and Rauskauskas (2015)

informally compared countries on HBSC data, finding bullying *lower* in high IDV countries. In work in progress, we have confirmed this counter-predicted finding systematically, for HBSC, EUKO, GSHS and TIMSS data; we hypothesized this was due to greater regulatory framework in higher individualist societies, but this is, as yet, untested.

Considering other Hofstede dimensions, predictions could be made regarding Power distance (this might affect the proportions of same-age or cross-age bullying), Masculinity-Femininity (this might affect the extent of male-female differences in bullying), and Uncertainty avoidance [bias, prejudice or identity-based (cyber)bullying can be predicted to be higher in high Uncertainty Avoidance (UAI) societies] (Smith, Kwak & Toda, 2016). Besides Hofstede categories, categories from Schwartz (2006) and Gelfand (Gelfand et al., 2011) might be considered.

Education system (e.g., levels by age, grade retention, class groupings, school and class size, structure of school day, break times, and supervision). These have been reviewed systematically by Jessel (2016). Some effects on victim and bully rates have been documented; for example, Kanetsuna (2016) invoked use of home room classes, and supervision of break times, in explaining differences between *ijime* in Japan and *bullying* in England. Grade retention, whereby pupils performing less well are held back in a grade, has been linked to bullying rates in Portugal (Pereira et al., 2004).

Technological infrastructure (e.g., penetration of mobile phones, smart phones and internet; violent media exposure). This is clearly very relevant for cyberbullying. From EUKO data, Helsper et al. (2013) derived a four-fold classification: supported risky explorers; semi-supported risky gamers; unprotected networkers; and ‘protected by restrictions’. Use of other media beyond the internet may be important: Calvete et al. (2010), in Spain, and Fanti et al.,

(2012), in Cyprus, found links from violent media exposure (on television, internet, movies, video games), to both cyberbullying and cyber victimization, and Hamer et al. (2014) suggested a 'Cyclic Process' model of this.

Regulatory framework (e.g., school policies, legal aspects, anti-bullying initiatives). There is limited evidence on the quality of school anti-bullying policies affecting general victim rates (Smith et al., 2012). In the USA, Hatzenbuehler et al. (2015) found that having some anti-bullying laws was associated with reduced rates of being both bullied and cyberbullied across 25 states. Ramirez et al. (2016) found an increase in victim rates in Iowa after an anti-bullying law was introduced, possibly due to increased reporting, but then a decrease for offline but not online victim rates.

Socio-economic stratification (e.g., income, internet access, health, crime). These have been examined primarily with HBSC data. In relation to bullying generally (using earlier surveys), prevalence rates have been linked to lower country wealth (Chaux et al., 2009; Elgar et al., 2009; Viner et al., 2012) and greater income inequality (Elgar et al., 2009, 2015; Viner et al., 2012). For being a cyber victim specifically, Inchley et al. (2016) examined family affluence as a factor in cyber victimization rates; they reported a relationship in a few countries and regions, but, of those that did show a relationship, more cyberbullying was generally reported by those with lower affluence. Using a sample of 18 countries from EUKO, Görzig, Milosevic, and Staksrud (2017) found that regional level cyber victimization rates were positively linked with GDP and crime rates, while they showed a negative relationship with life expectancy and population density.

Social Dominance Theory

Social Dominance Theory (SDT; Pratto et al., 2006) is a complex theoretical framework of intergroup relations derived from the observation that societies are organised in group-based hierarchies. More than a decade of research has supported arguments that social power imbalances originate from multiple levels (e.g., cultural policies and practices as well as individual relations). Power imbalances on the individual level (e.g., bullying) have been linked with power imbalances on cultural contextual levels. Developmental researchers have used SDT to explain general forms of bullying that include both physical and social aggression (Walcott et al., 2008). Addressing multiple levels of the socio-ecological system while explicitly proposing mechanisms that maintain social power imbalances, SDT lends itself well to make predictions about the directions of the effects for the factors proposed within the EUKO model.

It is proposed that culturally shared ideologies (i.e., legitimising myths) exist to maintain or enhance societal hierarchies. For example, it is argued that the predominantly Western value of individual achievement would enhance social comparison processes leading to individual discrimination (ingroup favouritism) (Pratto et al., 1994) (cf. Hofstede's individualism). On the contextual level, legitimising myths can be linked with cultural values and attitudes towards social equality. For example, attitudes towards equality have been found to be inversely linked with cyberbullying rates on the country-level within EUKO (Görzig & Machackova, 2016). SDT links social hierarchies with institutional discrimination (discrimination by governmental and business institutions); this relates to fewer resources for low hierarchy group members (e.g., health provision, income, education) as well as differential treatment by the authorities (e.g., longer prison sentences, higher police violence). Some of those variables have already established links with bullying prevalence rates (e.g., GDP, life expectancy; see above), but further indicators may need to be explored more systematically. Predictions can be derived for

contextual level factors relating to socio-economic stratification (e.g., income inequality), technological infrastructure (e.g., digital divide), education system (e.g., educational disparity) as well as regulatory framework (e.g., human rights and welfare).

Summary and Suggestions for Future Research

While there have been several small-scale studies of country differences in cyberbullying, large-scale surveys across many countries are currently limited to two – EUKO and HBSC. Unfortunately, although both are based on pupil self-report, agreement between them on country differences in cyberbullying is slight. This parallels the situation regarding bullying generally, including other large-scale surveys as well (Smith, Robinson, & Marchi, 2016).

Many factors can affect cross-national comparisons, both within a survey and between surveys, and we have outlined what we consider to be the most relevant. What is important in considering these is whether any particular factor interacts with country. For example, consider types of cyberbullying, which are mentioned somewhat differently in the EUKO and HBSC surveys. This would matter if the pattern of different types of cyberbullying varies between countries. For example, consider two countries X and Y with similar rates of overall cyberbullying. If, in country X, social exclusion types of cyberbullying were relatively more frequent, compared to country Y where posting inappropriate pictures was more common, then country X will tend to score higher in the EUKO survey but country Y in the HBSC survey. However, we know rather little about how the various factors identified vary in importance across countries, and more research is needed here.

Even if EUKO and HBSC disagree on country differences, we can be rather confident that they exist. The range of prevalence rates across countries is very large, typically varying by a factor of 7 or more, depending on survey and criteria. This huge range requires explanation,

and we propose the EUKO model as an entry point to investigating this. The five factors in the EUKO model at country level can be studied in relation to EUKO data for both cyber victim and cyberbully rates and HBSC data for online victim rates only. But to do so effectively, a better understanding of discrepancies between surveys is needed. Building such comprehensive models at the country level has not yet been attempted. This should be a target for future research.

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Table 1. Comparing cyber victim prevalence across countries (*n*=21) between EU Kids Online, and HBSC (for 3 ages, and for males and females). Correlations are over countries, between the two surveys.

	11 years	**13 years**	**15 years**
Males	0.19	-0.06	-0.04
Females	0.13	-0.03	-0.15
Total	0.17	-0.05	-0.09

Figure 1. EU Kids Online model.