

Intergroup Contact Theory and Disability

Karolyn Campbell

University of Utah

March 4, 2019

Abstract

Research applying contact theory to disability has been limited, and the studies that have been conducted are small and limited to non-generalizable populations. To address this gap in research, this study draws from contact literature and research on attitudes toward disability, utilizing large-scale Eurobarometer survey data to confirm the applicability of contact theory to disability. Using ordered logistic regression, this study finds that increased contact with people with disabilities has a positive and statistically significant relationship with positive attitudes about disability. The study also finds significant results for income and gender, with regression models suggesting that contact has a larger effect on women and people who are less wealthy. This opens the door to future research exploring both areas.

Keywords: contact theory, disability, income, gender, attitude

Intergroup Contact Theory and Disability

Since the 1950s, intergroup contact theory has had a prominent place in the social sciences. Researchers from a wide variety of fields including social psychology, sociology, and political science have studied the effects of contact with racial and ethnic minorities on attitudes towards those groups. Most studies have uncovered a positive relationship between intergroup contact and attitudes towards minority groups. Until recently, intergroup contact theory had not been tested on attitudes toward disability. Within the past 40 years, a small number of researchers have begun to investigate the effects of contact with disability, primarily in small or non-generalizable samples. In this paper, I utilize a Eurobarometer survey conducted in 2001 that reached a total of 17,103 respondents. I find that increased contact with people with disabilities has a positive and statistically significant relationship with positive attitudes about disability.

This research is important because many of the obstacles faced by disabled people are social in nature. Today, most disability theorists and scholars understand disability as something that is, at least in part, created by disabling social environments. On this understanding, a disability is not inherent in the body, but created by social spaces that are not built for a wide enough range of bodies or attitudes that exclude disabled people from full participation in social life. From this perspective, negative attitudes about disabled people actively contribute to the disablement of those individuals. Studying attitudes towards disability, and focusing on factors that influence these attitudes, can have important implications for disability policy and activism. In this paper, I use person-first language interchangeably with identity-first language in order to accommodate different preferences amongst disabled people, with identity-first language becoming increasingly preferred (Sinclair, 2013; Dunn 2015b). I begin by covering the literature

related to disability and contact theory, followed by hypotheses, a section on data and methods, my findings, and ending with conclusions that can be drawn from this research.

Literature Review

Research on intergroup contact theory has spanned a wide variety of research methodologies, including survey, archival, field, and experimental designs. Previous research has primarily focused on contact with racial or ethnic minorities, but has recently been expanding to include other minority populations. In this section, I begin with a brief history of contact theory, including the possible mechanisms discussed in the literature, caveats offered by researchers, and challenges to the theory. I then discuss the ways that attitudes have been defined and measured by previous researchers, cover research on attitudes towards disability, and provide an overview of the limited research that has attempted to study the effects of contact with disability on attitudes toward disability.

Intergroup Contact Theory

In his 1954 book *The Nature of Prejudice*, Gordon W. Allport introduced the idea that contact with minority groups could reduce prejudice toward those groups. In the book, he specified that contact would only have this effect under four conditions: (1) cooperation between the groups in question, (2) the support of authorities, law, or custom, (3) equal status between the groups, and (4) shared common goals. In other situations, Allport did not believe that contact would have significant or positive effects. Building on Allport's work, several subsequent scholars have investigated intergroup contact under these conditions. Others have been more

interested in the effects of contact more broadly, and have intentionally avoided situations where these conditions are met.

Most of the work that has been done on intergroup contact theory deals with the effects of interaction with racial or ethnic minorities (Cook, 1984; Harrington & Miller, 1992; Jackson, 1993; Patchen, 1999). Thomas F. Pettigrew and Linda R. Tropp, both prolific social psychologists, have published and co-published some of the most important work in this area. Beginning in 1997, Pettigrew tested and confirmed the intergroup contact hypothesis on 3,806 survey respondents in European countries. In order to determine which direction the causal pathway runs – considering the possibility that people who are prejudiced may make fewer intergroup friends – Pettigrew used nonrecursive models to determine that the “friends-to-less-prejudice path” is larger than the “prejudice-to-fewer-intergroup-friends path” (p. 173). In 1998, Pettigrew published another piece on his own, this time arguing that researchers studying intergroup contact theory need to do more to determine whether (1) the effects generalize to other situations, and (2) whether outcomes are different at different stages of contact.

Beginning in 2000, Pettigrew and Tropp began publishing work together. In 2006, they co-published a meta-analysis of over 500 previous studies, demonstrating that intergroup contact reduces prejudice for a wide variety of groups. They were able to determine that these effects were more pronounced in more rigorous studies, and especially pronounced in experimental research, all while controlling for problems of participant selection that might alter the direction of causation. Considering Allport’s hypothesis, Pettigrew and Tropp discovered that studies which met Allport’s conditions had a higher mean effect compared with other samples, but that Allport’s conditions were not necessary for contact to produce positive effects.

Possible Mechanisms. Researchers have also invested significant energy into determining the mechanisms through which contact improves attitudes towards minority groups. In his 1997 piece, Pettigrew theorized that the effects of intergroup contact arose out of empathy, identification with the out-group, and the reappraisal of the in-group. In 2008, he and Tropp used their meta-analytic data to revise this thesis, arguing that contact actually reduces prejudice by (1) increasing knowledge about the outgroup, (2) increasing empathy and perspective-taking, and (3) reducing anxiety about contact. Through a series of tests, they were able to determine that each of these mediators were significant, with anxiety-reduction and empathy having the largest effects. Other researchers have suggested that intergroup contact could reduce prejudice by increasing familiarity (Bornstein, 1989; Harmon-Jones & Allen, 2001; Lee, 2001), reducing uncertainty and anxiety (Lee, 2001; Paolini, Hewstone, Cairns, & Voci, 2004; Stephan et al., 2002; Brown & Hewstone, 2005), encouraging perspective-taking (Craig, Cairns, Hewstone, & Voci, 2002), or disconfirming stereotypes (Plant, 2004). Plant's research (2004) suggests that the effects of intergroup contact may be mediated by a combination of factors, including the disconfirmation of stereotypes, reduced anxiety, and changed expectations about the future.

Caveats and Conditional Relationships. Some researchers have found that the effects of intergroup contact are conditional on other external factors. Studying uncertainty reduction and its effects on intergroup anxiety, Voci & Hewstone (2003) uncovered a conditional relationship in which contact produces positive effects when group salience is high, but not when group salience is low. Amir (1969, 1976) suggested that contact may only work to reduce prejudice under optimal conditions, with unfavorable conditions actually working to increase prejudice. He also suggested that, under some circumstances, reductions in prejudice may not extend to all members of an outgroup. Forbes (1997) argued that intergroup contact only lowers

prejudice at an individual level, but not at a group level, suggesting that contact is not enough to solve group conflict. Stephan (1987) argued that intergroup contact is mediated by a wide variety of features of the contact setting and features of the groups and individuals in question. These features may enhance or inhibit contact's effects on attitude.

Challenges to the Theory. Other researchers have uncovered results that are not so optimistic. As mentioned above, researchers have questioned whether the causal relationship could run in the opposite direction, with prejudiced people avoiding contact with members of outgroups. Researchers interested in this possibility have used econometric measures to compare the causal effects running in each direction, and have concluded that contact has a greater effect on reducing prejudice than prejudice has on contact (Butler & Wilson, 1978; Pettigrew, 1997; Powers & Ellison, 1995). Other researchers have raised questions that have not yet been sufficiently addressed by scholars. Ford (1986) argues that existing studies do too little to examine the effects of contact in daily life, and McClendon (1974) and McConkey (1988) argue that many studies suffer from poor research methodology or inadequate sampling.

In 2003, Oliver and Wong introduced the possibility that contact with minority groups could actually produce more negative attitudes if that group is perceived as a threat. From this perspective, a 'superordinate' group may become more hostile as the size of a minority group grows. In similar studies, other researchers have produced results that are largely inconclusive (Dustman & Preston, 2001; Wagner, Christ, Pettigrew, Stellmacher, & Wolf, 2006), leaving the "threat hypothesis" ripe for future research. In 2014, Laurence determined that both the contact and threat hypotheses may hold up in the same communities. Laurence argues that increased community diversity has a negative effect on inter-ethnic attitudes, but only among individuals

who do not have contact with individuals of other ethnicities. In this case, contact moderates the negative effect of diversity on attitudes.

Gender Effects. In studying the effects of contact with racial and ethnic minorities, several scholars have reported differences in attitudes between men and women (Livneh, 1988; MacLean & Gannon, 1995), with women displaying more positive attitudes towards minority groups. Other studies do not find this difference (Ringlaben & Price, 1981; Stephens & Braun, 1980). Two studies that examine the impact of contact on attitudes have found that contact has a stronger impact women's attitudes. Yuker and Block (1986) and Pettigrew and Tropp (2006) uncovered a small gendered effect, finding that contact does more to reduce prejudice for women, though it also affects men at a statistically significant level. Yuker and Block believed that these differences could be diminishing with time.

Attitudes and Attitudinal Measures

Researchers studying intergroup contact have come up with a variety of sophisticated attitudinal measures. Most social psychologists think about attitudes in terms of their cognitive, affective, and behavioral components (Olsen & Zanna, 1993). Thoughts, ideas, and beliefs are considered cognitive attitudes, whereas emotions are categorized as affective, and actual behaviors are studied separately. Within this schema, attitudes can be mapped simply as positive, negative, or ambivalent (Eagly & Chaiken, 1993), or may be modelled in more complex ways that allow individuals to maintain dual attitudes (different, competing evaluations of the same objects) or different explicit and implicit attitudes towards an object. Researchers also differentiate between attitudinal measures that are direct, where respondents are informed that

their attitudes are being measured, versus indirect, where respondents are not aware of the researchers' purpose.

To study different dimensions of attitude, researchers – especially social psychologists – use attitudinal scales. Scholars who study attitudes toward disability have developed several of these over the span of fifty years. In the 1960s, the Attitudes Towards Disabled Persons Scale (ATDP) was first developed, using a unidimensional scale to measure generalized attitudes toward individuals with physical disabilities as a group (Yuker, Block, & Campbell, 1960; Yuker, Block, & Young, 1966). In 1967, the scale received a multidimensional update, transforming into the Disability Factor Scale General (DFSG), composed of 7 subscales (e.g., interaction strain, rejection of intimacy) measuring attitudes toward persons with various physical disabilities and chronic illness (Siller et al, 1967; Siller, 1970). Additional attitudinal measures were proposed in 1981 and 1982 (Antonak 1981; Antonak 1982) and again in 2007 (Findler, Vilchinsky, & Werner, 2007). None have achieved general acceptance.

Attitudes Towards Disabled People

Research from the early 1980s through 2010 suggests that people hold predominantly negative attitudes towards disabled people (Livneh, 1982; Yuker, 1994; Brodwin & Orange, 2002; Chan, Livneh, Pruett, Wang, & Zheng, 2009; Vilchinsky, Findler, & Werner, 2010), which substantively affect opportunities for people with disabilities (O'Hara, 2004). Examining differences between affective, cognitive, and behavioral attitudes, Findler et al. (2007) found that discomfort and anxiousness are common responses to encounters with disability, whereas behavioral and cognitive attitudes are more positive. From this, Findler et al. suggest that people may feel uncomfortable around disability, but do not tend to base their beliefs or actions on these

unconscious responses. Another researcher studied the sources of negative attitudes (Livneh, 1982), finding that negative attitudes may stem from anxiety about social encounters, stereotypes and prejudice, norms of physical attractiveness and/or health, negative beliefs about dependency, moral beliefs about the origins of disability, or the way in which disabilities may evoke a fear of death.

Other research suggests that attitudes towards people with disabilities are mixed. Research by Kleck (1968) suggests that people without disabilities may have negative emotional reactions to people with disabilities, while simultaneously behaving in a socially agreeable manner. Livneh (1988) has shown that reactions may even fluctuate from moment to moment, with feelings alternating between distaste and compassion. Dovidio, Paggato, & Hebel (2011) suggest that many people have explicit, positive views about disability while maintaining negative implicit, non-verbal attitudes. In the Eurobarometer data I use for my analysis, attitudes are primarily positive (see Appendix for descriptive statistics). This may be because the questions capture the cognitive rather than affective dimensions of attitude towards disability (as per Dovidio et al.'s 2011 argument), or because attitudes are changing and becoming more positive over time, as suggested by Griffiths and Lunsky (2000).

Contact and Attitude Toward Disability

Though many researchers have studied attitudes towards people with disabilities, few have attempted to study the effects of contact with disability on attitudes toward disability. In 1989, Clunies-Ross and O'Meara studied the effects of contact with disability on elementary students. For this project, they assigned 4th graders to one of two groups, one of which included disabled peers. After the program's end, those in the group with disabled peers reported more

positive attitudes towards disability. Naor & Milgram (1980), Harper & Wacker (1985) produced similar results in their studies of the effects of educating physically and mentally disabled children in the same schools as their able-bodied peers. Cameron, Rutland, Turner, Holman-Nicolas, and Powell (2011) asked nondisabled children to imagine interacting with disabled children to study the effects of imagined contact on intergroup prejudice. Compared to children in the control group, these children showed less prejudice in their attitudes towards people with disability, with an effect that was especially pronounced for the youngest children.

In 1993, Levy, Jessop, and Rimmerman studied the impact of contact with disability on the hiring practices of executives, demonstrating that executives who reported a history of previous contact were more likely to express positive attitudes about the employability of people with disabilities. In 1998, Amsel and Fichten conducted a study that examined the attitudes of nondisabled students towards their disabled peers, using retrospective self-reports of previous encounters. Their research suggests that previous contact with disabled people increases comfort and positive thoughts about disabled people, while reducing negative thoughts. From this research, Amsel and Fichten concluded that contact with disabled people could change students' thoughts about future interactions.

In 1994, Harold Yuker reviewed the limited previous research on contact with disability in order to make a broader claim about the types of variables that may influence attitudes toward disability. In this paper, Yuker considers the impact of (1) the characteristics of non-disabled people, including *information* and *contact* (2) perceived characteristics of disabled people, (3) other variables, including *context* and *group norms*. From this, Yuker suggests that *contact* and *information* are the two most important factors in determining attitude towards disability.

Nearly a decade later (2006), Pettigrew and Tropp conducted a large study that focused on contact with members of racial and ethnic minorities, but included measures for disability. This provided the first, exploratory conformation of impact of contact on attitudes towards disability in a large-N study. In the paper, Pettigrew and Tropp provide three different categories through which they measure attitudes – physical disability, mental disability, and mental illness. Effects were largest for those in contact with people with physical disabilities, and smallest for those in contact with people who are mentally ill. Results were statistically significant below a .01 level.

Gender Effects. Initial studies suggest that women may have more positive attitudes toward disability. In Findler et al.'s (2007) study of Jewish Israelis, women in the sample had more positive behavioral attitudes towards disability, though they did not differ from men along the cognitive or affective dimensions. Older studies suggest that women may be more willing to interact with disabled people (Harasymiw, Horne, & Lewis, 1976; Tringo, 1970). Findler's research suggests that there may be a gendered interaction effect for self-esteem along cognitive dimension, with self-esteem moderating men's cognitive attitudes toward people with disabilities, but not women's (Findler et al., 2007). Researchers have not studied whether men and women's attitudes shift differently in response to contact with disability.

Hypotheses

Based on existing research on contact with other minority populations and initial exploratory research on contact with disability, I would expect that increased contact with disabled people would produce more positive attitudes towards disability. Controlling for other factors, I would not expect to find different results for different age groups (Yuker & Block,

1986; Findler, 2007) or for individuals who are more or less religious. I expect to find a positive relationship for income, given that individuals with more income are more likely to be in contact with others with high incomes, including those with disabilities. I would anticipate that people with disabilities that have better access to healthcare and other resources would do less to trigger negative attitudes associated with dependency (Livneh, 1982), though existing research on income and attitudes towards disability have been mixed (Yuker, 1994). Though previous research has suggested that people with more education have more positive attitudes about disability (Yuker, 1994), I would anticipate that people with more education are more resistant to contact's effects.

Given that women typically have more positive towards disability (Findler, 2007) and that contact with other minority populations has produced a more pronounced effect in women's attitudes (Yuker & Block, 1986; Pettigrew & Tropp, 2006), I would expect that women who have contact with disabled people would develop more positive attitudes than their male counterparts. As per the literature, it is possible that these effects run in the opposite causal direction, with women seeking out friendships with disabled people more often than men (Harasymiw, Horne, & Lewis, 1976; Tringo, 1970). It is also possible that these effects are mediated by other variables such as self-esteem (Findler et al., 2007), which I am unable to analyze in the present study.

Previous research on contact with disability has not analyzed the effects of different types of contact. In this paper, I also look for differences between different types (whether the respondent is a family member, friend, or acquaintance of a person with a disability) or levels of contact (measuring the frequency of contact). I would anticipate that friends and family members would be more affected by contact than acquaintances, developing more positive attitudes at

higher levels of contact. This would make sense given that family members and friends would have more opportunities to overcome the negative affective responses (stress, anxiety, and uncertainty) reported in the literature. These responses would make more sense for acquaintances than intimate others. It would also make sense for heightened levels of contact to produce more positive attitudes overall, given that there is little risk that disabled people might appear threatening (as per the threat hypothesis).

Data and Method

Previous research on contact with disability has been based on very small sample sizes or highly specific populations from which results may not be generalizable (Amsel & Fichten, 1988; Clunies-Ross & O'Meara, 1989; Findler et al., 2007). This paper seeks to enable cross-cultural validation and generalization, utilizing a large sample of 17,103 respondents in a Eurobarometer survey of European countries (Eurobarometer 54.2: Impact of New Technologies, Employment and Social Affairs, and Disabilities). This survey was conducted between January and February of 2001 and was sponsored by the European Commission, a European Union (EU) institution responsible for managing much of the EU's day-to-day business.

In this survey data, I utilize two primary dependent variables to measure attitudes toward disability. The first variable (V280) provides a measure of whether or not the respondent believes that people with disabilities should be more involved in society, asking for a response on a scale from 1 to 4 to indicate whether the respondent strongly agrees, somewhat agrees, somewhat disagrees, or strongly disagrees with this statement: "Something should be done to involve people with disabilities more in society e.g. by facilitating their access to public places" (Christensen, 2001). The second variable (V285) operates on the same scale and provides a

measure of whether or not the respondent believes that more should be done to reduce barriers for people with disabilities. This time, respondents are asked to determine their level of agreement with this statement: “More money should be spent on removing physical barriers which complicate the life of physically disabled people” (Christensen, 2001). Descriptive statistics for both variables are presented in Table 1 and Table 2 in the Appendix.

My independent variable measures contact with disability. In the survey, respondents are asked the question, “Do you personally know anyone who has any long-lasting illness, disability or infirmity that limits their activities in any way?” (Christensen, 2001). Possible responses include yes and no, and those who respond “yes” are further prompted to indicate the type of relationship they have with this individual and how frequently they are in contact. Descriptive statistics for this variable are presented in Table 3 in the Appendix.

Because I have an ordinal dependent variable, I chose an ordered logit model for this analysis. I ran the regressions in R and used a simple imputation function to replace any missing data. I control for age, gender, income, religiosity, and education level in each of the models. Going further, I also utilize data available for family members, friends, and acquaintances of people with disabilities, and for different frequencies of contact, to run separate models and look for differences between these groups. I also tested for interaction effects for all control variables that are statistically significant in the model.

Findings

Using ordered logistic regression, I was able to confirm that contact with disability improves attitudes toward disability. For my first dependent variable of interest – which measures whether or not respondents believe that people with disabilities should be more

involved in society – I found positive and statistically significant results. Knowing someone with a disability increases the log of the odds of responding positively (responding “strongly agree”) to the question by 0.322, and these results are statistically significant below a .01 level. The results for this model are reported in Table 4 of the Appendix. For my second dependent variable of interest – which measures whether or not more should be done to improve access for people with disabilities – I also found positive and statistically significant results. Knowing someone with a disability increases the log of the odds of responding positively (responding “strongly agree”) to the question by 0.335, and these results are statistically significant below a .01 level. The results for this model are reported in Table 5 of the Appendix.

Though there are no differences by education level or religious intensity, I found mixed results for age. In the first model (presented in Table 4), contact has a very small positive effect on those who are older. In the second model (presented in Table 5), contact has a very small negative effect for those who are older. These results are consistent with my hypothesis for religious intensity, but inconsistent with my hypotheses for education and age. Within the “gender” variable, I found that contact actually produces more negative attitudes for men, compared with women, confirming my initial hypothesis. Within the “income” variable, I found that contact has a small negative effect on attitudes for those who are wealthier, disconfirming my initial ideas about this variable. For the control variables that included statistically significant differences (gender and income), I tested for interaction effects and found none.

I also ran separate models for family members, friends, and acquaintances. Comparing the effects of contact on attitudes for each group, I did not find statistically significant differences. I also ran separate models for variables measuring three different frequencies of contact, and did not find statistically significant differences. These results disconfirm my original

hypothesis that increased frequency and intensity of contact would produce more positive attitudes.

Conclusions

Though my primary result falls in line with previous exploratory research, confirming that increased contact with disability does indeed create more positive attitudes toward disability, I found unexpected results for income. In both models, contact had a negative and statistically significant effect on individuals at the highest levels of income. Thinking about this issue, I had previously hypothesized that wealthy individuals would be in contact with wealthy people with disabilities, who would be less dependent on assistance, and thus do less to trigger negative affective responses (Livneh, 1982). Given my results, it seems that wealthy individuals are either (1) coming into contact with disabled people who are not similarly wealthy, or (2) coming into contact with wealthy disabled people, but not experiencing any differential effects. Given that people with disabilities are more likely to be poorer overall, it is possible that the wealthiest individuals are not meeting disabled people who share their social status, and thus failing to meet Allport's "equal" status criteria for contact to produce positive effects. Future research could do more to explore the possibility Allport's conditions are relevant in respect to disability and income.

For my age variable, the results for each model pointed in two different directions, consistent with previous literature that has not produced consistent results either (Yuker, 1994). In the first model, which is centered around whether disabled people should be more involved in society, contact has a very small *positive* effect for individuals who are older. In the second model, which centers around a question about whether more should be done to improve access

for people with disabilities, contact has a very small *negative* effect for individuals who are older. Considering these differences, it is plausible that older individuals would be more fiscally conservative, and would see the second question as requiring government spending in a way that is not implied in the first question. To speak about including individuals in society does not carry a price tag in the way that actively reducing environmental barriers might.

To date, researchers have not analyzed the effects of contact with disability in terms of gender. In both of my models, I found that increased contact produces more negative attitudes for men. This is consistent with findings that women typically have more positive attitudes toward disability (Findler, 2007) and with research showing that contact with other minority populations has a more pronounced effect on women (Yuker & Block, 1986; Pettigrew & Tropp, 2006). Because the present study is unable to determine the direction of the causal relationship, it is possible that women are more likely to seek out friendships with disabled people because they are less prejudiced in the first place. Older research does confirm that women do tend to befriend disabled people more frequently (Harasymiw, Horne, & Lewis, 1976; Tringo, 1970), highlighting the need for future to do more to determine the casual direction of this relationship.

Though social psychologists have developed complex, multidimensional attitudinal measures, my two dependent variables only get at the cognitive dimensions of attitude. There are no questions in the Eurobarometer survey that get at behaviors or emotions in a way that would be adequate for this study. Given that people's cognitive beliefs may be more positive than unconscious emotional responses (Dovidio et al., 1997), future research should do more to determine whether affective attitudes are similarly affected by contact with disability. The present study also relies on respondents' self-reports and does not definitively determine the direction of the causal relationship, suggesting a need for future experimental research. For such

research, I would anticipate that most of the effect would run in the direction predicted by contact theory, as per previous research on other populations.

Because many of the obstacles faced by disabled people are social in nature, future research ought to do more to investigate the impact of contact with disability on attitudes towards the same. Given that contact seems to improve attitudes toward disability, and given the differences within gender and income categories uncovered in this paper, I would expect this line of research to have important implications for disability theory, activism, and policy. Disability theorists who utilize a social model – understanding disability as something that is created by disabling social environments – will find it worthwhile to consider the effects of contact on attitudes. Because negative attitudes can actively contribute to the disablement of impaired individuals, it is important to consider increased contact as a possible intervention. This type of work may enable people with disabilities to more fully integrate into society and participate in social life.

References

- Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- Amir, Y. (1969). Contact hypothesis in ethnic relations. *Psychological Bulletin*, *71*, 319-342.
- Amir, Y. (1976). The role of intergroup contact in change of prejudice and race relations. In P. Katz & D. A. Taylor (Eds.), *Towards the elimination of racism* (pp. 245-308). New York: Pergamon Press.
- Amsel, R., & Fichten, C. S. (1988). Effects of contact on thoughts about interaction with students who have a physical disability. *Journal of Rehabilitation*, *54*, 61-65.
- Antonak, R. F. (1981). Psychometric analysis of the Attitude Toward Disabled Persons Scale, Form-O. *Rehabilitation Counseling Bulletin*, *23*, 169-176.
- Antonak, R. F. (1982). Development and psychometric analysis of the Scale of Attitudes Toward Disabled Persons. *The Journal of Applied Rehabilitation Counseling*, *13*, 22-29.
- Antonak, R. F., & Livneh, H. (2000). Measurement of attitudes toward persons with disabilities. *Disability and Rehabilitation: An International, Multidisciplinary Journal*, *22*, 211-224.
- Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research, 1968–1987. *Psychological Bulletin*, *106*, 263-289.
- Brodwin, M. G., & Orange, L. M. (2002). Attitudes toward disability. In J. D. Andrew & C. W. Faubion (Eds.), *Rehabilitation services: An introduction for the human service professional* (pp. 174-197). Osage Beach, MO: Aspen Professional Services.
- Brown, R., & Hewstone, M. (2005). An integrative theory of intergroup contact. *Advances in Experimental Social Psychology*, *37*, 255-343.
- Butler, J. S., & Wilson, K. L. (1978). The American soldier revisited: Race relations and the military. *Social Science Quarterly*, *59*(3), 451-467.

- Cameron, L., Rutland, A., Turner, R., Holman-Nicolas, R., & Powell, C. (2011). Changing attitudes with a little imagination: Imagined contact effects on young children's intergroup bias. *Anales de Psicologia, 27*(3), 708-717.
- Chan, F., Livneh, H., Pruet, S., Wang, C. C., & Zheng, L. X. (2009). Societal attitudes toward disability: Concepts, measurements, and interventions. In F. Chan, E. da Silva Cordoso, & J. A. Chronister (Eds.), *Understanding psychosocial adjustment to chronic illness and disability: A handbook for evidence-based practitioners in rehabilitation* (pp. 333-367). New York, NY: Springer.
- Christensen, Thomas. (2001). Eurobarometer 54.2: Impact of New Technologies, Employment and Social Affairs, and Disabilities, January-February 2001. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2008-08-14. <https://doi.org/10.3886/ICPSR03211.v4>
- Clunies-Ross, G., & O'Meara, K. (1989). Changing the attitudes of students toward peers with disabilities. *Australian Psychologist, 24*, 273-284. doi: 10.1080/00050068908259566
- Cook, S. W. (1984). Cooperative interaction in multiethnic contexts. In N. Miller & M. B. Brewer (Eds.), *Groups in contact: The psychology of desegregation* (pp. 155-185). Orlando, FL: Academic Press.
- Craig, J., Cairns, E., Hewstone, M., & Voci, A. (2002). *Young people's attitudes to and contact with members of the religious out-group*. Unpublished manuscript, University of Ulster.
- Dovidio, J. F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33*, 510-540. doi: 10.1006/jesp.1997.1331

- Dovidio, J. F., Pagotto, L., & Hebl, M. R. (2011). Implicit attitudes and discrimination against people with physical disabilities. In R. L. Wiener & S. L. Wilborn (Eds.), *Disability and age discrimination: Perspectives in law and psychology* (pp. 157– 184). New York, NY: Springer. doi: 10.1007/978-1-4419-6293-5_9
- Dunn, D. (2015a). *The social psychology of disability*. New York, NY: Oxford University Press.
- Dunn, D. (2015b). Person-first and identity-first language. *American Psychologist*, 70(3), 255-264.
- Dustmann, C., and I. Preston. 2001. Attitudes to Ethnic Minorities, Ethnic Context and Location Decisions. *The Economic Journal* 111 (470): 353-373. doi:10.1111/1468-
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth: TX: Harcourt.
- Findler, L., Vilchinsky, N., & Werner, S. (2007). The Multidimensional Attitude Scale toward persons with disabilities (MAS): Construction and validation. *Rehabilitation Counseling Bulletin*, 50(3), 166-176. doi: 10.1177/00343552070500030401
- Forbes, H. D. (1997). *Ethnic conflict: Commerce, culture, and the contact hypothesis*. New Haven, CT: Yale University Press.
- Ford, W. S. (1986). Favorable intergroup contact may not reduce prejudice: Inconclusive journal evidence, 1960–1984. *Sociology and Social Research*, 70, 256-258.
- Griffiths, D. M., & Lunskey, Y. (2000). Changing attitudes towards the nature of socio-sexual assessment and education for persons with developmental disabilities: A twenty-year comparison. *Journal on Developmental Disabilities*, 71, 16-33.
- Harasymiw, S. J., Horne, M. D., & Lewis, S. C. (1976). A longitudinal study of disability group acceptance. *Rehabilitation Literature*, 37, 98-102.

- Harmon-Jones, E., & Allen, J. J. B. (2001). The role of affect in the mere exposure effect: Evidence from physiological and individual differences approaches. *Personality and Social Psychology Bulletin, 27*, 889-898.
- Harper, D. C., & Wacker, D. P. (1985). Children's attitudes toward disabled peers and the effects of mainstreaming. *Academic Psychology Bulletin, 7*, 87-98.
- Harrington, H. J., & Miller, N. (1992). Research and theory in intergroup relations: Issues of consensus and controversy. In J. Lynch, C. Modgil, & S. Modgil (Eds.), *Cultural diversity and the schools* (Vol. 2, pp. 159-178). London: Falmer.
- Jackson, J. W. (1993). Contact theory of intergroup hostility: A review and evaluation of the theoretical and empirical literature. *International Journal of Group Tensions, 23*, 43-65.
- Kleck, R. E. (1968). Physical stigma and nonverbal cues emitted in face to face interactions. *Human Relations, 21*, 19-28. doi: 10.1177/001872676802100102
- Laurence, J. (2014). Reconciling the contact and threat hypotheses: Does ethnic diversity strengthen or weaken community inter-ethnic relations? *Journal of Ethnic and Racial Studies, 37*(8), 1328-1349. doi: 10.1080/01419870.2013.788727
- Lee, A. Y. (2001). The mere exposure effect: An uncertainty reduction explanation revisited. *Personality and Social Psychology Bulletin, 27*, 1255-1266.
- Levy, J. M., Jessop, D. J., Rimmerman, A., & Levy, P. H. (1993). Attitudes of executives in Fortune 500 corporations toward the employability of persons with severe disabilities: Industrial and service corporations. *Journal of Applied Rehabilitation Counseling, 24*, 19-31.
- Livneh, H. (1982). On the origin of negative attitudes toward people with disabilities. *Rehabilitation Literature, 43*, 338-347.

- Livneh, H. (1988). *A dimensional perspective on the origin of negative attitudes toward persons with disabilities*. In H. E. Yuker (Ed.), *Attitudes toward persons with disabilities* (pp. 35-46). New York, NY: Springer.
- MacLean, D., & Gannon, P. M. (1995). Measuring attitudes toward disability: The Interaction with Disabled Persons Scale revisited. *Journal of Social Behavior and Personality, 10*, 791-806.
- McClendon, M. J. (1974). Interracial contact and the reduction of prejudice. *Sociological Focus, 7*, 47-65.
- McConkey, R. (1988). Assessing community attitudes. *Irish Journal of Psychology, 9*, 373-388.
- Naor, M., & Milgram, R. M. (1980). Two preservice strategies for preparing regular class teachers for mainstreaming. *Exceptional Children, 47*, 126-129.
- O'Hara, B. (2004). Twice penalized: Employment discrimination against women with disabilities. *Journal of Disability Policy Studies, 15*, 27-34.
- Oliver, E. J., and J. S. Wong. 2003. "Racial Context and Inter-Group Prejudice in a Multi-Ethnic Setting." *American Journal of Political Science 47* (4): 567-582. doi:10.2307/3186119.
- Olson, J. M., & Zanna, M. P. (1993). Attitudes and attitude change. *Annual Review of Psychology, 44*, 117-154.
- Paolini, S., Hewstone, M., Cairns, E., & Voci, A. (2004). Effects of direct and indirect cross-group friendships on judgments of Catholics and Protestants in Northern Ireland: The mediating role of an anxiety-reduction mechanism. *Personality and Social Psychology Bulletin, 30*, 770-786.
- Patchen, M. (1999). *Diversity and unity: Relations between racial and ethnic groups*. Chicago: Nelson-Hall.

- Pettigrew, T. F. (1997). Generalized intergroup contact effects on prejudice. *Personality and Social Psychology Bulletin, 23*, 173-185.
- Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65-85.
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination: Social psychological perspectives* (pp. 93-114). Mahwah, NJ: Erlbaum.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 751-783. doi: 10.1037/0022-3514.90.5.751
- Pettigrew, T. F., & Tropp, L. R. (2008). How does intergroup contact reduce prejudice? Meta-analytic tests of three mediators. *European Journal of Social Psychology, 38*, 922-934. doi: 10.1002/ejsp.504
- Pettigrew, T. F., & Tropp, L. R. (2011). *When groups meet: The dynamics of intergroup contact*. New York, NY: Psychology Press.
- Plant, E. A. (2004). Responses to interracial interactions over time. *Personality and Social Psychology Bulletin, 30*, 1458-1471.
- Powers, D. A., & Ellison, C. G. (1995). Interracial contact and Black racial attitudes: The contact hypothesis and selectivity bias. *Social Forces, 74*, 205-226.
- Ringlaben, R. P., & Price, J. R. (1981). Regular classroom teachers' perception of mainstreaming effects. *Exceptional Children, 47*, 302-304.
- Siller, J. (1970). Generality of attitudes toward the physically disabled. *Proceedings of the 78th annual convention of the American Psychological Association, 5*, 697-698.

- Siller, J., Chipman, A., Ferguson, L. T., & Vann, D. H. (1967). Attitudes of non-disabled toward the physically disabled. In *Studies in reactions to disability XI*. New York: School of Education at New York University.
- Sinclair, J. (2013). Why I dislike person-first language. *Autonomy, the Critical Journal of Interdisciplinary Autism Studies*, 1(2), p. 1. Retrieved from: <http://www.larry-arnold.net/Autonomy/index.php/autonomy/article/view/22>
- Stephan, W. G. (1987). The contact hypothesis in intergroup relations. In C. Hendrick (Ed.), *Review of personality and social psychology: Group processes and intergroup relations* (Vol. 9, pp. 13-40). Newbury Park, CA: Sage.
- Stephan, W. G., Boniecki, K. A., Ybarra, O., Bettencourt, A., Ervin, K. S., Jackson, L. A., et al. (2002). The role of threats in the racial attitudes of Blacks and Whites. *Personality and Social Psychology Bulletin*, 28, 1242–1254.
- Stephens, T. M., & Braun, B. L. (1980). Measures of regular classroom teachers' attitudes toward handicapped children. *Exceptional Children*, 46, 292-294.
- Tringo, J. L. (1970). The hierarchy of preference toward disability groups. *The Journal of Special Education*, 4, 295-306.
- Vilchinsky, N., Findler, L., & Werner, S. (2010). Attitudes toward people with disabilities: The perspective of attachment theory. *Rehabilitation Psychology*, 55, 298-306. doi: 10.1037/a0020491
- Voci, A., & Hewstone, M. (2003). Intergroup contact and prejudice toward immigrants in Italy: The mediational role of anxiety and the moderational role of group salience. *Group Processes and Intergroup Relations*, 6, 37-54.

- Wagner, U., O. Christ, T. F. Pettigrew, J. Stellmacher, and C. Wolf. 2006. Prejudice and Minority Proportion: Contact Instead of Threat Effects. *Social Psychology Quarterly* 69 (4): 380-390. doi:10.1177/019027250606900406.
- Yuker, H. E., Block, J. R., & Campbell, W. J. (1960). *A scale to measure attitudes towards disabled persons* (Human Resources Studies). Albertson, NY: Human Resources Center.
- Yuker, H. E., & Block, J. R. (1986). *Research with the Attitude Toward Disabled Persons Scales (ATDP): 1960–1985*. Hempstead, NY: Hofstra University.
- Yuker, H. E. (1988). The effects of contact on attitudes toward disabled people: Some empirical generalizations. In H. E. Yuker (Ed.), *Attitudes toward people with disabilities: Progress and prospects* (pp. 262-274). New York: Springer.
- Yuker, H. E., Block, J. R., & Young, J. H. (1966). *The measurement of attitude toward disabled persons* (Human Resources Study No. 7). Albertson, NY: Human Resources Center.
- Yuker, H. E. (1994). Variables that influence attitudes toward people with disabilities: Conclusions from the data. *Journal of Social Behavior and Personality*, 9, 3-22.

Appendix

I. Descriptive Statistics for Dependent and Independent Variables of Interest

Table 1, Should people with disabilities be more involved in society?

<u>Response</u>	<u>Number</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Strongly agree	12404	73.6	73.6
Somewhat agree	4183	24.8	98.4
Somewhat disagree	206	1.2	99.6
Strongly disagree	59	0.4	100.0
Total	16852	100.0	

Source: Eurobarometer Survey 54.2, 2001

Mode: "Strongly agree"

Table 2, Should more money be spent reducing physical barriers?

<u>Response</u>	<u>Number</u>	<u>Percent</u>	<u>Cumulative Percent</u>
Strongly agree	10757	64.7	64.7
Somewhat agree	5176	31.1	95.8
Somewhat disagree	491	3.0	98.8
Strongly disagree	214	1.2	100.0
Total	16638	100.0	

Source: Eurobarometer Survey 54.2, 2001

Mode: "Strongly agree"

Table 4, Do you know someone who is disabled?

<u>Response</u>	<u>Number</u>	<u>Percent</u>
Yes	10741	62.8
No	6356	37.2
Total	17097	100.0

Source: Eurobarometer Survey 54.2, 2001

Mode: "Yes"

II. Regression Models

Table 4, Ordered Logistic Regression with “Involvement in Society” Variable Measuring Attitude Toward Disability

<i>Dependent variable:</i>	
Involvement in society	
Contact with disability	0.322 ^{***} (0.035)
Age	0.003 ^{***} (0.001)
Gender (male)	-0.242 ^{***} (0.035)
Income	-0.051 ^{***} (0.016)
Religiosity	0.005 (0.009)
Level of education	0.013 (0.010)
Observations	17,103

* p<0.1; ** p<.05; *** p<0.01

*Note:*McFadden's Pseudo R² = .007

Table 5, Ordered Logistic Regression with “Remove Physical Barriers” Variable Measuring Attitude Toward Disability

<i>Dependent variable:</i>	
Remove physical barriers	
Contact with disability	0.335*** (0.033)
Age	-0.004*** (0.001)
Gender (male)	-0.158*** (0.032)
Income	-0.054*** (0.014)
Religiosity	0.010 (0.008)
Level of education	0.002 (0.009)
Observations	17,103

Note:

* p<0.1; ** p<.05; *** p<0.01

McFadden's Pseudo R² = .006

III. Variables Codes and Information

First attitudinal measure – Variable 280 (V280) measures how strongly respondents believe (or do not believe) that people with disabilities should be more involved in society. This variable operates on a scale from 1-4, with 4 indicating the strongest disagreement. Respondents who answered “Don’t Know” (DK) were coded as 5 in the original data. I randomly reassigned these values to the other four categories using a simple imputation function. The survey question was phrased as follows: Please tell me if you strongly agree, somewhat agree, somewhat disagree or strongly disagree with the following statements? (Show card with scale.) Something should be done to involve people with disabilities more in society e.g. by facilitating their access to public places.

Second attitudinal measure – Variable 285 (V285) measures how strongly respondents believe (or do not believe) that more should be done to remove barriers for disabled people. This variable operates on a scale from 1-4, with 4 indicating the strongest disagreement. Respondents who answered “Don’t Know” (DK) were coded as 5 in the original data. I randomly reassigned these values to the other four categories using a simple imputation function. The survey question was phrased as follows: Please tell me if you strongly agree, somewhat agree, somewhat disagree or strongly disagree with the following statements? (Show card with scale.) More money should be spent on removing physical barriers which complicate the life of physically disabled people.

Contact – Variable 186 (V186) measures whether or not the respondent knows someone with a disability. Possible responses include “yes” and “no.” Within this question, 1 is coded “no” and 0 is coded “yes.” Respondents who answered “Don’t Know” (DK) or for whom the question was

not appropriate (NA) were coded as 2 and 9 in the original data. I randomly reassigned these values to the other two categories using a simple imputation function. This question was phrased as follows: “Do you personally know anyone who has any long-lasting illness, disability or infirmity that limits their activities in any way?”

Age – Variable 299 (V299) measures the exact age of the respondent. There were no missing cases within this variable.

Gender – Variable 298 (V298) indicates the gender of the respondent. 1 is coded “male” and 2 is coded “female.” There were no missing cases within this variable.

Income – Variable 324 (V324) provides a measure of income, dividing income brackets into a scale ranging from 1-4, with 4 representing the wealthiest group. Respondents who answered “Don’t Know” (DK) or for whom the question was not appropriate (NA) were coded as 5 and 9 in the original data. I randomly reassigned these values to the other two categories using a simple imputation function.

Religiosity – Variable 380 (V380) measures the religiosity of the respondent on a scale from 1-9, with 1 indicating that the respondent is “extremely religious” and 9 indicating that the respondent is an atheist. Respondents who answered “Don’t Know” (DK) or for whom the question was not appropriate (NA) were coded as 10 and 99 in the original data.

Education level – Variable 382 provides a measure of the respondent’s education level, with a 1 indicating that the respondent had very little education (7 years of primary school or less) and a 7 indicating that the respondent attended college/university for five years or more. Respondents

who answered “Don’t Know” (DK) or for whom the question was not appropriate (NA) were coded as 8 and 99 in the original data.