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Impact of Contextual Factors on the Social Representation of Disability Among Students in Inclusive Junior High Schools

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Abstract

This article explores the social representation of disability and the stereotypes held by nondisabled students. We were particularly interested in how these might change as a result of the interaction between contact, visibility and hindrance. We recruited 549 junior high students from schools that included pupils with disabilities. Results showed that social representation and disability stereotypes were indeed contingent upon the interaction of the three factors. The wheelchair, which was at the core of the student's social representation of handicap at the beginning of the year, eased out and was replaced by references to mental disability and/or other terms when there was direct contact with a disabled peer. In the case of indirect contact, the disability had to be visible to observe similar results. Concerning disability stereotypes, the majority of participants initially attributed negative personality traits to people with disabilities and expressed negative emotions towards them. There was a tendency for them to become less negative under certain conditions at the year's end. We discuss these results and their implications.

Keywords: disability, social representation, stereotypes, contact, visibility, hindrance

Résumé

Cet article porte sur l'évolution de la représentation sociale du handicap et des stéréotypes qui y sont liés auprès de 549 jeunes adolescents non handicapés, scolarisés dans un cadre inclusif lors d'une année scolaire. L'interaction des facteurs contact, visibilité et importunité du handicap est particulièrement étudiée. Les résultats montrent que l'évolution de la représentation sociale et les stéréotypes du handicap dépendent effectivement de l'interaction des trois facteurs. Le fauteuil roulant, élément central de la représentation sociale du handicap en début d'année, s'efface au profit de références à la déficience mentale ou à d'autres termes lorsque le contact est direct avec un pair handicapé. En revanche, le handicap doit être visible pour repérer un tel résultat en cas de contact indirect. En ce qui concerne les stéréotypes du handicap, la majorité des participants attribuent des traits de personnalité négatifs aux personnes handicapées et expriment des émotions négatives à leur égard. Ces stéréotypes évoluent peu, mais tendent à devenir moins négatifs dans certaines conditions en fin d'année. Ces résultats sont discutés ainsi que leurs implications.

Mots-clés : handicap, représentation sociale, stéréotypes, contact, visibilité, importunité

Introduction

Most Western nations have opted to encourage people with disabilities to play a full and active role in society, and have legislated accordingly (Ainscow & César, 2006). This new political will reflects changes in conceptions of disability: over three decades, we have moved away from a medical approach centred on the individual towards a multifactorial approach that takes account not just of the person's state of health but also of the environment in which he or she lives and operates (Fougeyrollas, 1997). Despite these legislative and conceptual advances, however, people with disabilities continue to face barriers to their participation in every sphere of social life.

In schools, this reticence can take a variety of forms. While teachers are generally favourable to the policy of inclusion *in principle*, their enthusiasm swiftly evaporates when a pupil with a disability arrives in their classroom (Avramidis, Bayliss, & Berben, 2000). Concerning the socialisation of pupils with disabilities, research has shown that they enjoy fewer social interactions and fewer reciprocal friendships than their nondisabled peers (Estell et al., 2008) do. They also lose the few friendships they have when they disclose their disability or when that disability worsens (Moses, 2010). Even when they do have friends, they often find themselves trapped in asymmetrical relationships and continue to be regarded as different from nondisabled pupils (Skar, 2003; Watson, 2002). Lastly, pupils with disabilities are more often the victims of jokes, insults, and cold-shouldering by nondisabled children (Sentenac et al., 2011). These observations clearly sit ill with the aspirations of recent legislation, and it is important that we identify the sociopsychological dimensions of resistance to the inclusion of pupils with disabilities in mainstream schools, as these institutions play a key role in secondary socialisation.

The explanation, in part, for this resistance could lie in the nature of the social representation of disability. Social representations are sets of beliefs, knowledge, opinions and ste-

reotypes that shape attitudes and influence behaviour (Rouquette & Rateau, 1998), and French schools offer a prime opportunity for studying the representation of disability held by children. In less than a century, France's education system shifted from a segregationist model (1909-1975) to an integrationist one (1975-2005), and has slowly been moving towards inclusiveness since 2005, when the act on "equal rights and opportunities, participation and citizenship of persons with disabilities" was promulgated (Gillig, 2006). Increasing numbers of children with disabilities are therefore attending mainstream schools, especially at secondary level (French Ministry for Education, 2012).

Whichever form this schooling takes (full-time or part-time in a typical classroom, one-to-one support, etc.), a balance has to be struck between catering for the children's special educational needs (SENs) and favouring their social inclusion. On this particular point, French legislation urges nondisabled pupils to practise the values of tolerance and respect individual differences so that everyone can "live together"¹. The aim is therefore to change their whole perception of disability, replacing the medical deficit representation of disability with one that is person-centred (Gardou, 1999). The present study therefore explored the social representation of disability held by French junior high students, seeking to detect possible changes.

- Social representation and transformation

A social representation is a "form of knowledge that is socially elaborated and shared with a practical aim, contributing to the construction of a reality shared by a given social group" (Jodellet, 1989, 36). According to the structural approach (Abric, 1994), social representations are made up of cognitive components organised in a hierarchical, two-tier system comprising a central core (stable part) and a peripheral area (flexible part). The central core is

¹ Official Bulletins of National Education numbers 1995-125, 1999-187 and 2010-088, which are named Educational integration of preteens and teens with disabilities in middle and high school; Schooling of children and teenagers with disabilities; Schooling of the disabled pupils.



directly associated with the values and norms conveyed by society. The peripheral components, on the other hand, reflect the characteristics of individual members of that society and their immediate context. The peripheral area acts as a buffer zone, accommodating components informed by individual experiences and life stories, whilst shielding the central core from change.

Even though social representations are remarkable for their stability, they can and do change in order to remain relevant in the changing social world. According to Flament (2001), the introduction of new practices, resulting from modifications in the social environment, is the main reason for their transformation. This transformation (Guimelli, 1994) results in modifications to the central core.

- *The social representation of disability*

According to Morvan (1988), the social representation of people with disabilities can be broken down into five images. The *semiological* image defines disability in terms of deficiencies and pathologies (e.g., Down syndrome, paralysis). The *secondary* image tends to dwell on the disability's repercussions in terms of incapacity, reducing it to technical (e.g., assistive devices, wheelchair), human (e.g., physicians, psychologists), and institutional (special schools, etc.) forms of support. The *childlike* image likens people with disabilities to overgrown children who lack autonomy and need help. The *affective* image concerns the personality traits that are attributed to people with disabilities. The fifth image, *relational*, represents the affects (feelings and emotions) that are triggered by the able-bodied or able-minded by people with disabilities. The social representation of disability is dominated by semiological and secondary images.

Were we to apply a structural approach to these findings, we would probably conclude that the central core of the disability representation contains items referring to the medical dimension of disability. However, as far as we are aware, its organisation has only been explored on two occasions. The first study dis-

covered that deficiency was one of the central components of the social representation of mental disability held by trainee specialist teachers (Lachal et al., 2005). The second, conducted among pupils of an inclusive junior high school, also found a reference to deficiency in the central core, this time in the shape of a wheelchair (Harma, Gombert, & Roussey, 2013). It further showed that the peripheral system varied according to the children's actual experience of integration (i.e., whether any of their classmates had a disability) and the visibility of the disability (i.e., whether or not there was a visible deficiency). Results indicated that the inclusion of a pupil with a visible disability prompted participants to refer more to the difficulties linked to disability. If the disability was not visible, participants referred more to the personality traits and physical attributes of people with disabilities. The fact that contextual factors (experience of integration, visibility of the disability) brought about a variation in the peripheral system suggests that it is possible for the social representation of disability to change. Although, as we said earlier, the peripheral system serves to protect the central core, it may reach a tipping point if the number of children with disabilities entering mainstream education rises beyond a certain point, resulting in the modification of the central core.

What makes this a particularly important area of research is the fact that contextual factors are known to influence attitudes, themselves a product of social representations. Several studies, for instance, have shown that pupils' attitudes towards disability vary according to the type of disability they encounter, and the degree of contact they have with it. There are divergent results as to the effects of the *contact* factor. Some researchers have suggested that children who come into regular and prolonged contact with people with disabilities (e.g., a classmate, friend or family member with a disability) do indeed develop more positive attitudes towards them, whether the deficits are intellectual and cognitive, or physical and sensory. Gottlieb, Cohen, and Goldstein (1974), however, found that it was young people who had never come into contact with pupils with disabilities at school who displayed the most

positive behaviour towards them. In the same register, Vignes (2009) showed that the presence of a SEN class (*pedagogical integration unit*, UPI) in their school was associated with more negative attitudes among French fifth graders. Yet other studies have failed to find any significant effect of contact on the attitudes of nondisabled pupils.

Concerning the *type of disability*, researchers have shown that pupils have more positive attitudes towards physical disabilities than towards intellectual ones, citing visibility as a reason (Furnham & Gibbs, 1984; Magiati, Dockrell & Logotheti, 2002; Tringo, 1970; Wisely & Morgan, 1981). Their explanation is that physical deficiencies, such as paralysis, blindness and amputation, are immediately visible, unlike intellectual ones. Nevertheless, according to Goffman (1975)'s stigma theory, another factor could explain this finding: disturbances in the fluidity of social interaction can result in more negative attitudes towards individuals with disabilities. For example, people attending a meeting may well ignore a colleague's wheelchair because when they are all sitting round a table, his or her disability does not impede the smooth flow of proceedings. Were that colleague to have a stammer (i.e., a disability that is not immediately visible), the interaction would be disrupted as soon as he or she spoke. One person's disability may thus be visible, yet not at all disruptive, while another's may be invisible, but cause considerable disruption.

This is certainly the case for some forms of mental disability, such as intellectual deficiency, which can hinder social intercourse because the people concerned are assumed to have a poorer vocabulary and be slower, less focused, absent-minded or over-imaginative (Pace, Shin, & Rasmussen, 2010). It is therefore legitimate to ask whether the supposed hindrance from mental disability actually provides a better explanation for people's more negative attitudes towards mental, as opposed to physical, disability. To our knowledge, however, the effect of this factor has never specifically been investigated. Research focusing exclusively on attitudes towards mental disability,

which is popularly assumed to hinder social interaction, has shown that they are less favourable towards mental illness than they are towards intellectual disability (Schwartz & Armony-Sivan, 2001; Walker et al., 2008). One possible explanation for this is that intellectual disability, unlike mental illness, is represented by a visible disability (i.e., Down syndrome). Instead of focusing exclusively on the characteristics of a given disability, we should therefore investigate the *interaction* of contextual factors if we want to explore variations in social representations and attitudes.

Taken together, these various theories and approaches suggest that the expansion of mainstreaming in France will eventually bring about a shift in the current social representation of disability. How and when it does will, however, depend on a range of contextual factors, including the extent of contact, the visibility of the disability, and the hindrance it is thought to cause.

- Objective of the present study and hypotheses

Our study had a twofold objective. First of all, we set out to probe the social representation of disability and the (positive or negative) disability stereotypes held by junior high students attending inclusive schools. Second, we looked for possible changes in them as a result of the interaction of three factors: Contact, Visibility and Hindrance. In the light of the research findings outlined above, we decided to test four hypotheses. Our first hypothesis was that deficiency is the main component of the social representation of disability held by junior high students, just as it is for adults (Morvan, 1988) and adolescents (Harma et al., 2013) (H1). We also hypothesised that, just as perceptions of disability are negative (Goffman, 1975) so, too, are disability stereotypes, which we explored via the personality traits our participants attributed to people with disabilities and the emotions they expressed towards them (H2). Third, as new practices tend to modify social representations (Flament, 2001), we hypothesised that mainstreaming leads to changes in non-disabled children's social representation and



stereotypes of disability (H3). Fourth and last, in the light of research on the factors liable to influence the social representation of disability and attendant attitudes (Allport, 1954; Goffman, 1975), we formed the hypothesis that change is contingent upon the interaction between contact, visibility and hindrance (H4).

Method

- Operationalised factors

The *contact* factor corresponded to contact with a peer with a disability at school. This factor was divided into two modalities: direct contact and indirect contact. We selected junior high schools where pupils with disabilities were present for the full school day, and included in ordinary classes for at least half that time. Within these schools, pupils belonging to inclusive classes formed the direct contact group, and those who belonged to noninclusive classes formed the indirect contact group.

Concerning the characteristics of the disability, if the disability was easily observable because of a physical stigma that was impossible to conceal or because of the use of an assistive device, it was said to be *visible*. In all other cases, the disability was deemed to be *non-visible*.

Hindrance was the term we used to refer to disabilities that disrupt social interactions between disabled persons and those who are not (radical break in Goffman's "rites of interaction"). This disruption must lead nondisabled people to adapt to restore the rites of interaction. Goffman (1975) gives the example of a person who reaches out his right hand to greet a person whose right arm has been amputated. In this situation, the interaction is broken and to restore it, the two individuals have to extend their left hands. Some forms of disability, such as deafness, elocution disorders, and intellectual disabilities... can be a hindrance to the interaction. For instance, they can lead the person who is speaking to a disabled individual, to speak more slowly or to accompany his or her language with gestures (eating, drinking, listening...), to make the partner repeat, to ask him

to communicate through a different way, or to use simple vocabulary to be understood. In this study, the operationalization of the hindrance factor is limited to intellectual disability because it impedes communication and the fluidity of the interaction (Goffman, 1975; Marcellini, 2005) between pupils in the classroom, the schoolyard or off school grounds. Thus, pupils with intellectual disability were considered to have a "hindering" disability.

These three factors were found to interact in five junior high schools in Southeast France, which we therefore selected as the setting for our research. The first school included five pupils with Down syndrome (hindering and visible; Hin+ V+), the second included four pupils with motor disorders² (nonhindering and visible; Hin- V+) and the third included six pupils with learning disabilities (nonhindering and nonvisible; Hin- V-). The fourth and fifth schools included a total of ten pupils with an intellectual disability but no physical stigma (hindering and nonvisible; Hin+ V-).

- Participants

We recruited nondisabled pupils in their first or second year of junior high school. Participants from 17 inclusive classes, who therefore had direct experience of integration, formed our direct contact group. They were matched with participants from 16³ noninclusive classes, based on three criteria: same junior high school, same school year (i.e., first or second year), and equivalent academic performances. These participants formed our indirect contact group.

A total of 620 students schooled in 33 identified classes were authorised by their parents to take part in the experiment, but only the

² Cerebral palsy of these pupils is not accompanied by problems of elocution. Moreover, they are schooled in a completely accessible school (elevator, ramp, automatic doors...). So, the interactions between disabled and nondisabled pupils should not be disrupted.

³ 17 noninclusive classes had been selected but one theme did not hand over the parental consents within the set deadlines. So, the number of noninclusive classes was reduced to 16.

549 students who participated in both data collection sessions were included in the final sample, which contained 285 girls (51.9 %) and 264 boys (48.1 %), aged 10.2-15 years ($M = 12.6$ years).

For ethical reasons, we took several steps to minimise the stigmatising effects of our study on the pupils with disabilities. Their parents were informed of the research and its objectives, and with their agreement, their children took part in the study, completing the same questionnaire as their nondisabled peers. They sometimes took part in a semi-structured interview. This material was not processed in the present study.

- Procedure

The first session was held in October/November 2009 (T1) and the second in April/May 2010 (T2). Participants answered the questionnaire during their study periods, which is when pupils with disabilities usually return to their special classes to consolidate their learning. The latter therefore completed the questionnaire or underwent the interview in a classroom that had been specially set aside for them, so that the experimenter could support them more effectively. The same protocol was followed in both sessions. After he described briefly the study, the experimenter emphasised that all the responses would be analysed anonymously. The students were then asked to fill out the questionnaire on their own.

- Material

We used a free-association question to probe the content of the participants' social representation of disability. Participants first had to provide five words or expressions that came to mind when they thought about someone with a disability. They then had to list them in order of importance. We looked at two indicators: frequency of occurrence and importance ranking. To study the stereotypes linked to disability, participants had to answer two descriptive questions. One concerned the personality traits they attributed to people with disabilities, the other the affects they felt towards them. In the first one, participants were given a list of 12 traits and asked to select the four they felt best described people with disabilities. They then had to select the four least characteristic traits. The remaining terms were deemed to be neutral. To answer the second question, they were shown a list of 12 emotions and asked to select them in the same way. All the items were then incorporated into clauses that would be easily understandable to young junior high pupils. Their order was randomised in each list.

- Data collection and analysis

We analysed 1098 questionnaires filled out at the two sessions by 549 participants. We ran two analyses on the free-association data to explore the social representation of disability and one analysis on the descriptive data to explore disability stereotypes.

TABLE 1 : DISTRIBUTION OF PARTICIPANTS ACROSS THE EIGHT EXPERIMENTAL CONDITIONS

	Direct Contact		Indirect Contact	
	High-visibility disability V+	Nonvisible disability V-	High-visibility disability V+	Nonvisible disability V-
Hindrance+	78	116	33	101
Hindrance-	67	40	76	38
Total	145	156	109	139



A content analysis of all the words produced in response to the free-association question revealed that the typology of the social representation of disability (Harma, Gombert, & Roussey, 2013) consisted of seven categories⁴: pathologies or symbol (paralyzed, blind, Down syndrome, wheelchair...), personality traits and physical attributes (nice, funny, naughty, courageous...), norms (different, as us, bizarre...), feelings/emotions (sadness, sorrow, compassion...), disease (disease, health problems, asthma, hospital...), difficulty (his has difficulties, it's difficult) and the causes of disability (accident, genetics...). In line with Bardin (1989)'s five recommendations, these categories were exhaustive, exclusive, methodical, objective, and quantifiable. The coding had to be approved by two judges, who were tasked with checking that the words were correctly classified and were only placed in one category. When both judges considered that a term had been misclassified, but could not agree on the right category, a third judge was brought in. After discussion between the three judges, the statement was reclassified either unanimously or by a majority. When multiple occurrences were excluded, participants were found to have produced a total of 709 different terms. Of these, 26 were reclassified by the judges, 32 required the intervention of a third judge. Interrater agreement was above 90 %. A total of 2514 words were produced and classified at T1 and 2545 words at T2.

A second analysis crossing ranking with frequency allowed us to identify those terms that made up the central core and those that belonged on the periphery. More specifically, a high-frequency term with a high importance ranking was deemed to belong to the central core, whereas a term with, say, a low frequency and a low or moderate ranking was relegated to the peripheral system (Vergès, 1994). This analysis was carried out with Evoc 2005 software, which was designed specifically for this type of analysis. We further compared the items that were in the central core at T1 with those that were in it at T2, in order to see if the representation had changed and to measure

the effect of the Contact x Visibility x Hindrance interaction.

The third analysis concerned the items that were chosen to describe the personality of people with disabilities and the emotions felt towards them. Items were classified according to their polarity, after which we counted the number of occurrences.

For all three content analyses, we used the χ^2 test to observe the effect of the Contact x Visibility x Hindrance interaction, using Outils. Stat freeware (Dauvier & Arciszewski, 2009). The significance threshold was set at $p = .05$.

Results

To study the effect of the interaction between Contact, Visibility and Hindrance on changes in the social representation of disability, we looked at the Visibility x Hindrance interaction in each of the two Contact modalities. After providing the results on the *content* of the social representation of disability, we set out the results on its *organisation*, and the results on the disability stereotypes.

- Changes to the content of the social representation of disability

Our young junior high pupils mainly cited different types of disability and symbolic objects when referring to disability (pathologies category, T1: 1542 words; T2: 1379 words). They made far fewer references to either feelings/emotions or personality traits and physical attributes. In the direct contact modality, changes in the content of the social representation depended on the nature of the disability the participants encountered. When their schoolmates had a Hin+ V+ disability, participants referred less to their feelings/emotions, and to the causes of disability at the end of the year. There was a comparable shift when the disability was V-, regardless of whether it was Hin+ or Hin-. More specifically, pupils made fewer references to pathologies and deficiencies to evoke disability, and more references to personality traits and physical attributes. No significant change was observed among partici-

⁴ More eighth unclassifiable category.

pants who had a classmate with a Hin- V+ disability.

When participants had only indirect contact with a pupil with a Hin+ V- disability, they evoked more personality traits and physical attributes at the end of school year, and were less prone to express their feelings/emotions towards disability. Those who had indirect contact with pupils with a Hin- disability, whether it was V+ or V-, referred less to deficiencies at the end of the year and more to personality traits and physical attributes. However, Visibility did affect the frequency of terms belonging to the other categories. When the disability was V+, pupils used more terms evoking difficulty and feelings/emotions, whereas when it was V-, they referred more to norms. No change was observed among participants who had indirect contact with pupils with a Hin+ V+ disability.

- *Changes in the organisation of the social representation of disability*

By calculating the frequency and mean ranking of each word or expression in the corpus, we

were able to access the social representation's central core. The term most often cited by the participants was *wheelchair* (169 out of 549). At the beginning of the year, the participants shared more or less the same social representation of disability, as the central core consistently featured a single component (*wheelchair*). However, depending on the nature of the interaction, this representation then changed in the course of the school year.

The social representation of disability held by participants who came into *direct contact* with a classmate with a disability changed regardless of the nature of that disability. In every single case, the term *wheelchair* moved out of the central core, to be replaced by at least one term referring to mental deficiency, either generically (*mental disability*), specifically (*Down syndrome*) or both. In two of the conditions, one other term appeared in the central core: *ill* (Hin+ V-) and *nice* (Hin- V+). The terms making up the central core therefore varied according to the interaction of our three contextual factors.

TABLE 2

DISTRIBUTION OF THE TERMS PROVIDED BY THE PARTICIPANTS IN DIRECT CONTACT WITH A CLASSMATE WITH A DISABILITY ACROSS THE SEVEN CATEGORIES ACCORDING TO THE VISIBILITY X HINDRANCE INTERACTION AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR

Categories	V+ Hin+			V- Hin+			V+ Hin-			V- Hin-		
	T1	T2	p	T1	T2	p	T1	T2	p	T1	T2	p
Pathologies	224	253	ns	342	292	.001	182	168		135	102	.01
Personality/Physical	36	52	ns	38	90	.001	31	45		9	33	.001
Norms	26	21	ns	31	42	ns	13	16		11	10	ns
Feelings & emotions	43	28	.05	85	74	ns	39	52		18	14	ns
Disease	18	14	ns	23	31	ns	7	12		15	14	ns
Difficulty	10	6	ns	11	8	ns	3	3		4	5	ns
Causes of disability	9	1	.01	6	6	ns	10	3		0	3	ns
Total	366	375	.02	536	543	.001	285	299	ns	192	181	.005



TABLE 3

DISTRIBUTION OF THE TERMS PROVIDED BY THE PARTICIPANTS IN INDIRECT CONTACT WITH A PEER WITH A DISABILITY ACROSS THE SEVEN CATEGORIES ACCORDING TO THE VISIBILITY X HINDRANCE INTERACTION AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR

Categories	V+ Hin+			V- Hin+			V+ Hin-			V- Hin-		
	T1	T2	<i>p</i>	T1	T2	<i>p</i>	T1	T2	<i>p</i>	T1	T2	<i>p</i>
Pathologies	87	81		235	262	<i>ns</i>	223	151	.001	114	67	.001
Personality/Physical	20	27		32	50	.05	26	54	.005	13	26	.02
Norms	17	16		29	37	<i>ns</i>	11	17	<i>ns</i>	5	16	.02
Feelings & emotions	16	19		116	71	.001	48	93	.001	39	51	<i>ns</i>
Disease	12	4		30	31	<i>ns</i>	15	14	<i>ns</i>	10	9	<i>ns</i>
Difficulty	4	5		11	8	<i>ns</i>	4	20	.005	3	9	<i>ns</i>
Causes of disability	4	1		6	4	<i>ns</i>	5	4	<i>ns</i>	0	0	
Total	160	153	<i>ns</i>	459	463	.01	332	353	.001	184	178	.001

TABLE 4

CENTRAL CORE OF THE DISABILITY REPRESENTATION HELD BY PARTICIPANTS IN DIRECT CONTACT WITH A CLASSMATE WITH A DISABILITY ACCORDING TO THE VISIBILITY X HINDRANCE INTERACTION AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR

V+ Hin+		V- Hin+		V+ Hin-		V- Hin-	
T1	T2	T1	T2	T1	T2	T1	T2
Wheel-chair (43/2.0)	Mental disability (12/2.0)	Wheel-chair (60/2.1)	Mental disability (15/1.9)	Wheel-chair (41/2.1)	Mental disability (9/1.8)	Wheel-chair (25/2.2)	Down syndrome (10/2.2)
	Down syndrome (24/1.7)		Ill (14/2.3)		Nice (9/2.4)		
			Down syndrome (17/2.4)				

NB: In parentheses, the first number corresponds to the frequency of occurrence and the second at importance ranking.

As for the participants who only came into *indirect contact* with a pupil with a disability, their social representation of disability only changed if that disability was V+. The nature of this change then depended on whether the disability was Hin+ or Hin-. If the disability was Hin+ V+, the central core contained the term *Down's syndrome*, but if it was Hin- V+, it contained terms *like us* and *poor guy*.

- Changes in the stereotypes linked to disability

At both T1 and T2, participants mainly used negative personality traits to describe disability, except for those who came into direct contact with a peer whose disability was Hin- V+. Nonetheless, in one condition (direct contact, Hin- V-), participants used more positive traits to describe disability at T2.

At T1, participants used primarily negative emotions to describe their feelings towards disability in six of the eight conditions we studied. These were students who came into either direct or indirect contact with a peer whose disability was V- (either Hin- or Hin+), those who came into direct contact with a pupil with a Hin+ V+ disability and those who came into indirect contact with a pupil with a Hin- V+ disability. At T2, changes were only observed in when participants came into direct contact with a pupil with a Hin+ V- or Hin- V+ disability. In these two conditions, participants felt more positive emotions at T2 than at T1. Indeed, in the Hin- V+ condition, most of the emotions expressed at T2 were positive.

TABLE 5

CENTRAL CORE OF THE DISABILITY REPRESENTATION HELD BY PARTICIPANTS IN INDIRECT CONTACT WITH A PEER WITH A DISABILITY ACCORDING TO THE VISIBILITY X HINDRANCE INTERACTION AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR

V+ Hin+		V- Hin+		V+ Hin-		V- Hin-	
T1	T2	T1	T2	T1	T2	T1	T2
Wheel-chair (15/2.2)	Down syndrome (14/1.6)	Wheel-chair (41/2.2)	Wheel-chair (44/1.4)	Wheel-chair (49/2.2)	Like us (9/2.4) Poor guy (13/2.1)	Wheel-chair (20/1.9)	Wheel-chair (11/1.3)

NB: In parentheses, the first number corresponds to the frequency of occurrence and the second at importance ranking.

TABLE 6

DISTRIBUTION OF PERSONALITY TRAITS SELECTED AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR BY PARTICIPANTS IN DIRECT OR INDIRECT CONTACT WITH A PEER WITH A DISABILITY TO DESCRIBE DISABILITY, ACCORDING TO POLARITY AND THE VISIBILITY X HINDRANCE INTERACTION

Traits	Direct Contact								Indirect Contact							
	V+ Hin+		V- Hin+		V+ Hin-		V- Hin-		V+ Hin+		V- Hin+		V+ Hin-		V- Hin-	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Positive	86	90	110	123	125	141	39	48	40	38	105	115	104	119	41	53
Negative	226	222	341	341	143	127	119	112	90	94	299	289	198	185	110	99
Total	312	312	451	464	268	268	158	160	130	132	404	404	302	304	151	152



TABLE 7

DISTRIBUTION OF EMOTIONS SELECTED AT THE BEGINNING (T1) AND END (T2) OF THE SCHOOL YEAR BY PARTICIPANTS IN DIRECT OR INDIRECT CONTACT WITH A PEER WITH A DISABILITY TO DESCRIBE WHAT THEY FELT TOWARD DISABILITY, ACCORDING TO POLARITY AND THE VISIBILITY X HINDRANCE INTERACTION

Emotions	Direct Contact								Indirect Contact							
	V+		V-		V+		V-		V+		V-		V+		V-	
	Hin+		Hin+		Hin-		Hin-		Hin+		Hin+		Hin-		Hin-	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Positive	135	150	133	158	148	173	44	54	65	57	124	132	123	134	51	54
Negative	176	162	322	306	120	94	114	106	64	75	277	272	179	167	101	98
Total	311	312	455	464	268	267	158	160	129	132	401	404	302	301	152	152

Discussion

The aim of the present study was to explore the social representation of disability held by junior high students attending inclusive schools, and to find out if and how it changed as a result of the interaction between contact, visibility and hindrance. We also looked at disability stereotypes, again in order to pick up possible changes and to observe the effect of the Contact x Visibility x Hindrance interaction.

First of all, results showed that our participants' social representation of disability was dominated by references to different types of deficiency. This was reminiscent of Morvan (1988)'s findings for adults more than two decades earlier. At T1, the central core contained just one component (*wheelchair*). To explain why it is that the wheelchair has come to symbolise disability, we need to look at the modern history of disability. In the second half of the twentieth century, invalids and disabled servicemen (amputations, paralysis, etc.) made up a sizeable proportion of the population, leading to a strong increase in wheelchair production. Wheelchairs allowed their users to continue to participate in social life and thus became increasingly visible in public places.

In the sixties, the now familiar blue-and-white pictogram featuring a wheelchair was selected to become the international symbol of disability (Marcellini, De Leseleuc, & Le Roux, 2008; Saillant & Fougeyrollas, 2007). This pictogram

is apparently too firmly rooted in the minds of ordinary citizens to be dethroned by other pictograms created to symbolise specific types of disability (deaf, mute, blind) and today it is even used to indicate accessibility for people with mobility problems that are not directly linked to a deficiency (e.g., a person with a stroller or a pregnant woman). This pictogram is therefore used to refer to a wide diversity of disabling situations encountered by individuals and not just to one specific type of disability.

Throughout the school year, the participants' social representation of disability changed in six of the eight conditions we studied. Whereas *wheelchair* had been the sole component of the central core at T1, by T2 it had largely vanished, making way for other terms. This change was observed among all the participants who came directly into contact with a classmate who had a disability, regardless of its nature. By contrast, for those who were only in indirect contact, a change was only observed when the disability was visible. Direct contact with a peer with a disability therefore sufficed to change our participants' social representation of disability, whereas that disability had to be visible for the same result to be seen in the indirect contact condition. It is legitimate to wonder whether the pupils who had only indirect contact with pupils with V- disabilities were actually aware of the fact, as these pupils had either dyslexia or a minor intellectual disability, neither of which matches the two prevailing disability archetypes, namely the *wheelchair*

and *Down syndrome* (Giarni et al., 1988). Future studies will therefore need to check that participants who do not share a classroom with pupils with disabilities actually realise that theirs is an inclusive school, by asking them, for instance, what they know about the local inclusive schooling unit (known as *ULIS* in France) programme in their school.

In the six conditions where we observed changes in the social representation of disability, the new items making up the central core differed according to the interaction between the contact, visibility and hindrance factors. In the direct contact condition, if the disability was Hin- V- or Hin+ V+, the change consisted solely in the arrival of one or two terms referring to mental deficiency. In the two other direct conditions, however, new arrivals included not just terms referring to mental deficiency, but also terms referring to pathologies (Hin+ V-) and to personality traits (Hin- V+). Thus, whatever the characteristics of the disability that was directly encountered, the change consisted in the entry of at least one term referring to mental disability. This could be either generic (*mental disability*) or specific (*Down syndrome*). This result can be interpreted in the light of the participants' daily experiences in their inclusive classrooms. Some of them probably had to adjust their level of language to suit their classmates, repeat what they said to them, and focus on the reality of who they were in order to interact with them. By contrast, others doubtless discovered that, despite the disability label, their peers still met most of the prevailing social and academic norms (pupils with paralysis or dyslexia). Direct contact therefore makes pupils realise that different deficiencies can have different degrees of repercussions, and leads them to conceive of physical disability as being less disabling than mental disability. As a result, they reject the symbol of the wheelchair in favour of mental disability as the fundamental figure of disability (Giarni et al., 1988).

When participants had indirect contact with a V+ disability, results showed that the hindrance caused by the disability affected the nature of the changes in the social representation. When the disability was Hin+, the central core con-

tained *Down syndrome*, because this was precisely the sort of disability they saw in the schoolyard, the canteen or the corridor between lessons. When it was Hin-, the central component was *poor guy*, for as Rohmer and Louvet (2009) have shown, able-bodied people see individuals with this type of disability (i.e., motor problems) as distorted images of themselves. These images may take part into the reorganisation of the social representation of disability, prompting participants to perceive their peers with disabilities as both their equals and as people who were unlucky and suffering. More generally, these results lead to two methodological observations. The first one concerns analyses by which it becomes possible to distinguish the central elements from the peripheral elements. The results on the evolution of social representations should be complemented and deepened with other techniques of validation of the core components. Indeed, the questions of evocation classically used to identify the elements susceptible to belong to central core (Abric, 2003) could be validated using the Ambiguous Scenario Induction method (ASI, Moliner, 1993, 2002), or the Calling Into Question technique (CIQ, Moliner, 1989) or else the Test of Context Independence (TCI, Lo Monaco et al., 2008). For example, the use of the ASI method for studying social representation of disability could be developed according to the three phases: a) after collecting the elements belonging to the social representation of the object via a question of evocation, a text presenting this object without ever naming it and without using the collected elements would be produced. It would be about a description of a person with a disability in which the types of disability, symbols or the term handicap would not be mentioned. This text would be submitted to the participants who would have the task of identifying if the person is disabled, sick person, in difficulty, vulnerable... If fewer than half of the participants identified a person with a disability (shared identification), the scenario would be considered ambiguous and could be used to identify the central elements; b) then, this ambiguous scenario would be submitted to two groups of participants with an additional sentence each: one indicating the social object studied "one person with a disability (scenario



conform), the other indicating the opposite "It is not a person with a disability (contradictory scenario); c) lastly, on a Likert scale the participants would answer a questionnaire in which they would indicate their degree of adhesion to the characteristics related to disability and identified during pre-investigation : this person is in a wheelchair, this person is courageous... These characteristics should register a high adherence score when the scenario is "conform" and low when the scenario is "contradictory". Thus, this method makes it possible to discriminate, which characteristics are or are not central to the social representation.

The second methodological observation concerns that it would be worthwhile to define familiarity with disability in even more detail in future studies by looking for other criteria by which to gauge contact at school. The Level of Contact Report (Holmes et al., 1999) could be used to measure each participant's intimacy of contact with disability (low, medium or high). It would, however, have to be adapted to use with adolescents encountering a wide range of disabilities, as it was originally intended to measure adults' familiarity with mental disability. Regarding contact at school, it would be interesting to take account of the attitudes of the participants' teachers and parents, as Stewart (1990) and Robertson, Chamberlain and Kasari (2003) have shown that they can influence children's attitudes. We should also take classroom teaching practices into consideration, as they can promote contact between pupils with and without disabilities (peer mentoring, mutual assistance, working in groups, etc.). Lastly, it is important to scrutinise the way in which the inclusive policy is implemented by individual schools, as some of them actively strive to support inclusion, not least by encouraging teachers to seek extra training, raising disability awareness and making sure that SEN classes are located in the main building. All these initiatives can dispel negative disability stereotypes within the school community.

Although the social representation of disability changed for the majority of our participants, the stereotypes remained stable. The only change we observed was in the descriptions of people

with disabilities provided by participants who had indirect contact with a Hin- V- disability, who used more positive personality traits at the end of the year. Despite this, they continued to supply mostly negative terms, as did their peers in the other conditions, except for those in direct contact with a Hin- V+ disability, who supplied positive and negative traits in equal measure at both T1 and T2. These results show that inclusive schooling did not lead students to develop more negative perceptions of people with disabilities, and that direct contact with pupils with a Hin- V+ disability seems to be the best way of getting children to view people with disabilities in equally positive and negative ways. This is not a particularly surprising result, as this particular condition was exemplified by pupils with motor problems (paralysis), a deficiency that attracts ambivalent stereotypes. People with paralysis are perceived of as having a will to live and an ability to adapt. They are attentive to others, but remain trapped in their suffering (Rohmer & Louvet, 2011). This may have been the image that came to mind when participants had classmates with paralysis, leading them to attribute equal numbers of negative and positive personality traits during the year.

Finally, among the elements composing the social representation of disability, some are stereotypes related to disability: "different", "slow" or "courageous" (Ravaud, Beaufils, & Paicheler, 1986). Therefore, we can wonder about the link between social representation and stereotypes. The last notion cited is defined as « a set of shared beliefs about personal characteristics, usually personality traits, but also behaviors specific to a group of people » (Leyens, Yzerbyt, & Schadron, 1996, p. 129). This definition is similar to this central core because he gathered the beliefs, values and norms concerning an object and making consensus in a social group. From then on, we can wonder if the central elements of a social representation are systematically stereotypes. Moliner and Vidal (2003) worked this question by studying the central elements of the social representation of the older people and their stereotypes. Their results show that the stereotypy and centrality test scores are correlated for 19 of the

20 items tested. An item for which there is not significant correlation is an element belonging to the core of the social representation of the old person. So, the central elements cannot be stereotypes. However, the comparison of the score of stereotypy for the items belonging to the central core (68.4 %) with that of the items belonging to the peripheral system (32.4 %) indicates that the first are more stereotypic than the second are. In other words, the central elements identified are in the majority of cases conform to stereotypes but not automatically. These results could lead to think that elements which are at the same time central and stereotypic are most resistant to change. When these components have a negative valence, we can imagine their effects on the social interactions. For example, there was a time when people with disabilities were excluded because of mistaken beliefs that disability was an incarnation of the devil or a contagious disease. Thus, aiming for a change in the perception of disability passes also and necessarily by work on the processes of social categorization which are founded on the stereotypes and which should be deconstructed, in particular by exposure to information that counters the stereotypes (Weber & Crocker, 1983).

Regarding the emotions felt towards disabilities, they were predominantly negative in six of the eight conditions at the start of the school year. By the end of the school year, this figure had fallen to four. More specifically, participants attending schools that included pupils with visible disabilities stated that they felt both positive and negative emotions by the end of the year, whether their contact was direct or indirect. Moreover, in the case of direct contact with a Hin- V+ disability, emotions became mostly positive. These results suggest that the visibility of the disability led participants to feel fewer negative emotions towards disability. This interpretation must, however, be viewed with caution, as our results could also be explained by the stereotypes that are associated with the sorts of deficiencies participants encountered. Paralysis (Rohmer & Louvet, 2011) and Down syndrome (Carlier & Ayoun, 2007; Enea-Drapeau, Carlier, & Huguet, 2012) attract a mixture of positive and negative emotions,

including feelings of compassion, sympathy, guilt and unease. These affects were probably present before among our junior high students, predisposing them to feel fewer negative emotions towards disability by the end of the school year. It is therefore legitimate to question whether results would have been the same for other visible deficiencies, such as multiple disabilities or cleft lip, that have different associated stereotypes. We believe that far more studies need to be conducted to ensure that visibility is indeed the factor responsible for positive change in the emotions expressed by individuals towards disability.

The change in our participants' social representation of disability raises the question of the attitudes that this representation shapes. We would expect a modification of the central core to be accompanied by modified attitudes and behaviour (Rateau, 2000; Tafani & Souchet, 2001). However, although the change was real enough, the central core remained rooted in disability, as its main new component was mental disability. Even if this type of change were to lead to a shift in attitude, what would be the direction of that shift, given society's negative perception of mental disability? In addition, if there were no such shift, would this mean that the central core needs to include items that do not refer exclusively to disability before a change is observed in students' attitudes?

Before we start to try and answer these questions, the present study's findings need to be taken one step further. Our results confirmed the usefulness of exploring changes in the social representation of disability by looking at the interaction between contact, visibility and hindrance, rather than examining each factor separately. We therefore need to ascertain now whether the changes we observed can be replicated in other conditions and using other methodologies. For example, a longitudinal study could be conducted of students who come into contact with peers with other deficiencies that correspond to the interaction between visibility and hindrance, such as multiple disabilities (Hin+ V+), blindness or dwarfism (Hin- V+),



autism spectrum disorder or dysphasia (Hin+ V-), or depression (Hin- V-).

Conclusion

The inclusive practices introduced in France as a result of the 2005 Act were intended to engineer changes in students' social representation of disability through exposure to an inclusive setting. Although the precise direction of these changes depends on how the contact, visibility and hindrance factors interact, the social representation of disability appears to remain firmly anchored in the medical model of disability (Jamet, 2003). This outcome may seem to run counter to the Act's objectives, as the aim was to modify the way people look at disability, such that they consider the person and not just his or her deficiency. However, the results of the present study showed both that personality trait components could enter the central core, and that working alongside classmates with disabilities for a year does not increase the number of negative characteristics attributed to people with disabilities. The variations we observed suggest that with time and the development of inclusive practices, the Act's objectives may be met. This raises the question of how to change the social representation of disability according to these objectives. There are several avenues worth exploring, including the introduction of programmes designed to remove stigma from disability. Although programmes along these lines have yielded promising results in the past (Holtz & Tessman, 2007; Reina et al., 2011), they have primarily involved providing information about deficiencies, thus affording few opportunities for people with disabilities to be perceived of other than from a medical perspective. This is a problem that all such initiatives need to address.

As well as providing both general and more specific information about disability to all the players in the education system, it would be useful to raise awareness of disability by highlighting not just differences but also, and more importantly, similarities. The aim would not be to deny the difference linked to the disability, nor to overstate similarities with able-bodied people, but rather to put similarity on the same

par as difference, the aim being to get people with disabilities to be perceived of as men/women, mothers/fathers and employees, such that they are no longer viewed solely through the lens of deficiency. In sum, de-stigmatisation programmes should seek to improve the environment in which pupils with disabilities operate and construct their identity, so that they are regarded as regular members of the school community.

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