

**Added stakeholders, added value(s) to the cognitive enhancement debate: Are academic discourse and professional policies sidestepping values of stakeholders?**  
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## Abstract

**Background:** The debate on the non-medical use of prescription medication for the enhancement of cognitive function (e.g., attention, memory, concentration, vigilance), accompanied by heated public discussions in the media, has spurred the interest of scholars and the public.

**Methods:** In this paper, we present qualitative data from a focus group study with university students, parents, and healthcare providers. We identified ethical, social, and legal issues related to the non-medical use of methylphenidate for cognitive enhancement (CE) and closely examined the positions taken on these issues and their supporting arguments.

**Results:** The ethical, social, and legal issues we identified (e.g., authenticity, cheating) were similar to those identified in a previous discourse analysis of the bioethics literature but indicate the existence of moderately and highly contentious issues as well as factors and values underlying these issues. The model we generated from these findings shows how interplay between values (e.g., effort and honesty) and external factors (e.g., regulation and access) may lie at the root of contentious ethical issues in CE.

**Conclusions:** Our discussion points to an unsuspected complexity in understanding values of stakeholders and their unclear relationship to academic discourse and professional societies. We propose deliberative or other democratic processes as a way to recognize and incorporate the complexity of the CE debate.

**Keywords:** cognitive enhancement, neuroethics, focus groups, stakeholder perspectives, professional guidelines, pragmatism

## Background

The debate on the non-medical use of prescription medication for the enhancement of cognitive function (e.g., attention, memory, concentration, vigilance) has spurred the interest of scholars (Farah et al. 2004; Hall 2004; Greely et al. 2008; Forlini and Racine 2011) and the public through heated discussions in the media (Forlini and Racine 2009b). Several specific ethical issues surrounding this phenomenon (often called “cognitive enhancement” (CE) by academics) have now been described and discussed at length (President’s Council on Bioethics 2003; Chatterjee 2004; Farah et al. 2004; Hall 2004; Mehlman 2004; Bush

2006). Throughout this debate, little consensus exists on the moral acceptability or moral praiseworthiness of CE (Racine 2010). It has been suggested by some authors that cognitive enhancers “should be viewed in the same general category as education, good health habits, and information technology – ways that our uniquely innovative species tries to improve itself” (Greely et al. 2008, p. 702). Yet others consider that “biotechnological enhancement fundamentally alters the essence of what it means to be an individual” (Bush 2006, p. 131). These opposing points of view have been associated with the broader framework of the “culture wars”, which underlies many polarized American bioethics debates like stem cell research and end-of-life care (Racine 2010). The entrenched opposition that characterizes the perspectives within academic ethics creates blind spots, resulting in a lack of attention to underlying values and assumptions (Parens 2005) that could have consequences in the development of cohesive policy approaches, irrespective of their liberal or conservative orientations.

A second debate concerns whether CE poses novel and salient ethical issues of its own and what type of attention and response, if any, these issues require. Scholars have voiced healthy scepticism about the novelty of the questions related to CE based on precedent lifestyle use of illicit and prescription drugs (Lucke et al. 2010) or exaggerations about the effects and prevalence of CE<sup>1</sup> (Outram 2010). As such, the nature of the debate and response to CE becomes a phenomenon to reflect on in its own right. This is important in light of comments that the academic debate is overly polarized to the point where *advocacy* – rather than *open scrutiny* – better describes current scholarship, in bioethics generally and in the debate about CE specifically (Callahan 2005; Parens 2005; Racine 2010). Exaggerations of the novelty and prevalence of CE, along with a dubious use of CE terminology within the academic literature, (Racine and Forlini

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<sup>1</sup> Estimates of the proportion of university students using stimulants to enhance academic performance range from 1.3% to 11% (Wilens et al. 2008; Racine and Forlini 2010; Franke et al. 2011).

2010) suggest that academia has not necessarily been an impartial and reasonably objective participant in the CE debate (Hall and Lucke 2010; Lucke et al. 2010; Outram 2010; Forlini and Racine 2011). Moreover, assumptions about the effects and prevalence of CE could prevent open-ended discussion and stifle debate by suggesting that “cognitive enhancement” is by nature an “enhancement” (Racine and Forlini 2010) or that prevalence creates pressures to hastily condone the moral acceptability of CE more generally (Lucke et al 2010).

These points of contention within academic debates have complicated efforts to map the ethical landscape of CE, while also structuring the debate in ways that may create or perpetuate blind spots. For example, in policies and guidelines about CE produced by two professional societies and a government committee, commonly shared assumptions such as (1) the strong need for professional guidance, (2) the urgent need for social discussion, (3) estimates of high prevalence and widespread demand for enhancers (Outram and Racine 2011) have already been cited as motivators for advice on governance on how to approach CE in an ethical manner (British Medical Association 2007; Larriviere et al. 2009; Commission de l'éthique de la science et de la technologie 2009). There is therefore the potential, as we have argued elsewhere, for the academic debate focused on the ethics of CE to actually perpetuate blind spots with respect to the way that issues are identified, discussed, and approached in the public domain in the development of policies with little reality check and input from non-academic perspectives on CE (Racine and Forlini 2010; Forlini and Racine 2011).

An emerging body of research has begun to shed some light on potential blind spots within academic CE discourse by investigating the perspectives of different stakeholders with regard to the non-medical use of prescription medication. These data create the possibility of better situating the ethics debate within relevant social contexts and redirecting,

if needed, the academic ethics debate to address issues that are important to stakeholders. So far, stakeholders in these studies consist of university students or members of the public (Sabini and Monterosso 2005; Riis, Simmons and Goodwin 2008), healthcare professionals (Banjo, Nadler and Reiner 2010; Hotze et al. 2011) and combinations of these groups (Bergstrom and Lynoe 2008; Forlini and Racine 2011; Forlini and Racine In press). These empirical studies employ methodologies, both quantitative and qualitative, that allowed the authors to identify attitudes, opinions, and reactions to different aspects of CE and CE-related ethical issues. Results have honed in on specific issues (e.g., autonomy, fairness, authenticity), providing more information on how stakeholders grapple with the permissibility of CE. The results of these studies help illuminate the real-world context of CE, adding important facets and realities that inform and enrich academic debates but can also sometimes radically contradict or call into question assumptions made in these debates which may not reflect the real-world context of CE. In a striking study, Riis *et al.* used a series of vignette experiments to show that healthy young individuals are more reluctant to enhance traits that are perceived to be fundamental aspects of their self-identities than those which are believed to be less fundamental (Riis, Simmons and Goodwin 2008). However, attitudes toward legal access are not shaped by this perspective on self-identity but rather by moral concerns (e.g., fairness and authenticity). We have previously reported that both liberal and more “conservative” or prudential academic bioethics positions on CE may err fundamentally in their assumptions about individuals’ levels of freedom to either choose or refuse CE; both positions are in radical disconnect with perceived pressures and coercion (Forlini and Racine 2009a). In other studies, healthcare providers emphasized concerns for the safety and efficacy of medications used for CE as well as issues of social justice in terms of distribution and potential insurance coverage (Banjo, Nadler and Reiner 2010; Hotze et al. 2011). These studies show the psychological complexity

underlying perspectives regarding the ethics of CE, in contrast to some of the more simplistic assumptions made within the polarized academic ethics debate as well as in discussion of policy and professional associations. This contrast between academic and non-academic discourses is suggestive of parallel debates in the multiple approaches to the ethics of CE (Forlini and Racine 2011).

In this paper, we sought to identify the ethical, social, and legal issues that are most important to stakeholders and to better understand the values at the root of ethical contentions about CE. We present qualitative data from a focus group study that we hope will enrich comprehension of ethical issues in CE with experiential knowledge and perspectives contribute to a grounded understanding of different stakeholder perspectives on CE and the emerging literature on non-academic stakeholder perspectives on CE.

The study was inspired by an open-ended research approach grounded in pragmatism (Racine 2010) as a pathway to develop empirically-based ethical approaches in a context of unclear moral intuitions and pervasive academic debate. The data we acquired contribute to furthering our understanding of social and psychological factors underlying the CE debate while shaping a complex picture of public attitudes to CE. We discuss specifically how academic approaches fall short of capturing values of importance to stakeholders, most notably authenticity. We argue that current policies would benefit from attending to the values underlying public perspectives toward CE, although this would call for non-conventional approaches to develop policies through open deliberation.

## Methods<sup>2</sup>

We focused our study on methylphenidate (MPH). Methylphenidate is a prescription stimulant that is used to control the symptoms of Attention Deficit/Hyperactivity Disorder (ADHD) and is more commonly known under the commercial name Ritalin (Canadian Pharmacists Association 2008). This prescription drug is often cited as being used by university students to increase academic performance (Teter et al. 2003; Barrett et al. 2005; Arria and Wish 2006; Teter et al. 2006; Wilens et al. 2008) in spite of unclear evidence about its efficacy (Repantis et al. 2008, 2010, 2010).

### *Participants*

Participants consisted of three groups: university students 25 and under, parents of university students and healthcare providers (HCP). Each group brought a different perspective. The age limit on university students reflects data showing that the practice exists among undergraduate students (Babcock and Byrne 2000; White, Becker-Blease and Grace-Bishop 2006). Parents of university students provide a generational difference and they are directly connected to university education. Healthcare providers work closely with medications to treat disease, making their perspective on the repurposing of MPH for CE of interest to this study. A HCP was defined as someone having a professional responsibility to care for the health of patients (e.g., doctors, nurses, pharmacists). No particular expertise with MPH was required.

### *Recruitment*

The study and the recruitment strategies were approved by the Research Ethics Board (REB) of institutions where the study was conducted. English and French recruitment advertisements were posted in common areas of

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<sup>2</sup> The data presented in this article is part of a larger study of which the methodology and other non-overlapping data have been previously published (Forlini and Racine 2009a; Forlini and Racine In press). (

two universities and affiliated institutions. Advertisements were also featured in various general and student newspapers as well as online classified sites. E-mail invitations were sent to major student associations and faculty members in healthcare professions. Participants received compensation (\$50) for their time.

### *Focus groups*

Focus groups, as a method, allowed us to gain insight into broader stakeholder perspectives as opposed to those of single individual which could be gathered in a survey approach. To minimize recruitment bias and encourage participation of non-experts, participants remained unexposed to the specific subject of the discussion (CE with MPH) until they received the documentation package. This package included a print media sample of four articles, a consent form, and a short questionnaire. The articles were chosen from a systematic print media sampling of prior discourse analysis (Racine and Forlini 2010). To maximize the scope of the focus group discussion, articles were selected to reflect variability in content (e.g., details about how students obtain pills, effects, and testimonials), quality of information, overall coverage of ethical issues, length, and country of origin (Laurance 2003; Zernike 2005; Morency 2006; Ross 2006). After reading the articles, participants were asked to fill out an anonymous questionnaire collecting demographic data and information about prior knowledge of CE with MPH.

The interview grid for the focus groups was based on the results of prior discourse analysis, which identified salient ethical issues in different literature, including the print media (Racine and Forlini 2010). We tested the interview grid with three pilot interviews to gauge the appropriateness and comprehension of our questions. During the focus groups, participants were first invited to comment generally on CE and then express their opinions regarding the ethical, social, and legal issues related to CE. They were also asked to comment on the potential ethical, legal, social, and



healthcare impacts of CE as well as solutions to these issues. Finally, participants were asked to give their impression on the media coverage of MPH for CE based on the prompt material. The focus groups were moderated by one of the authors (ER) to allow spontaneous expression of opinions while ensuring coverage of the topics included in the interview grid. The other author (CF) assisted the moderator and took field notes.

### *Coding*

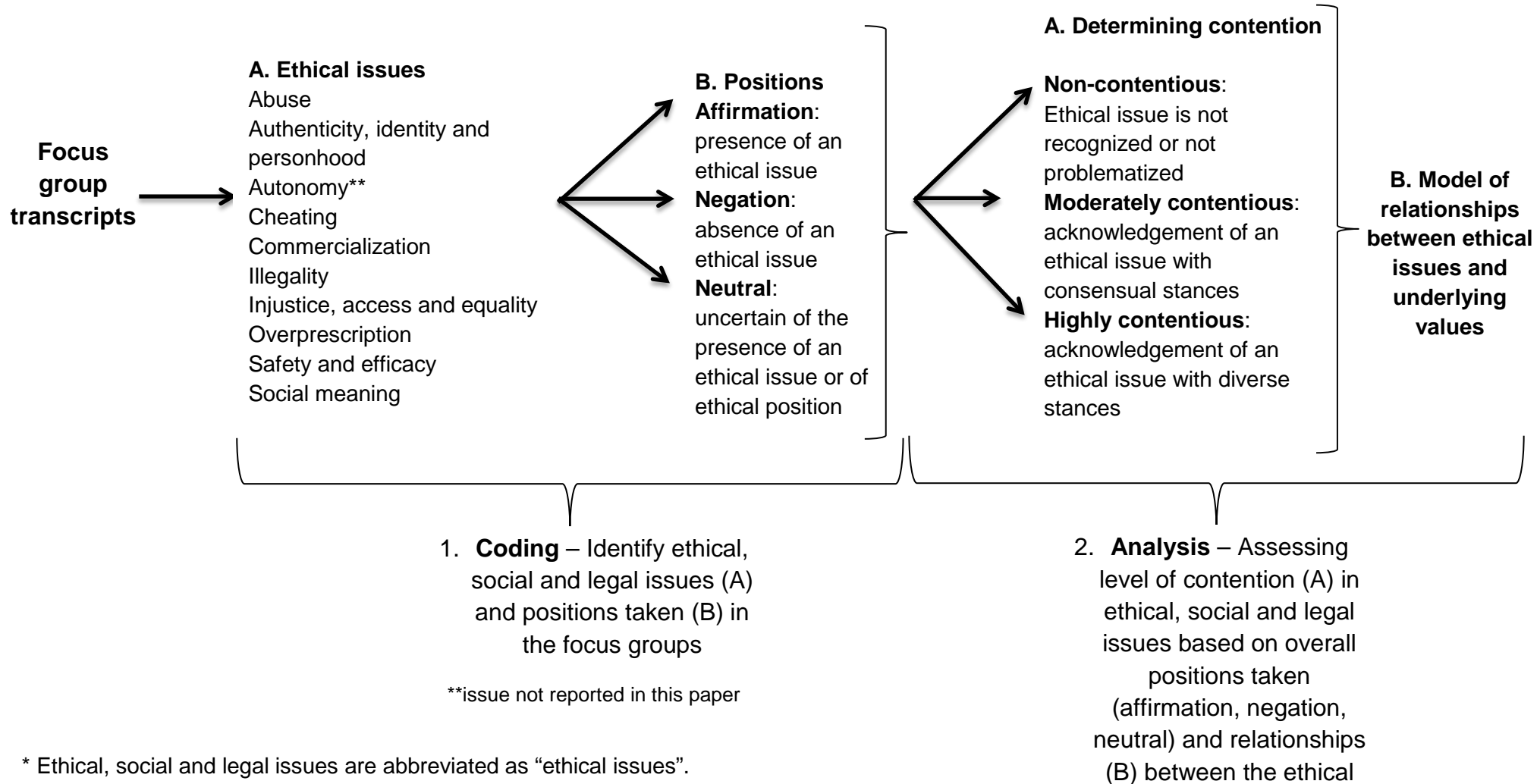
Each focus group discussion was recorded and transcribed verbatim. The transcripts were coded systematically using QSR NVivo 7 software (Doncaster, Australia) according to a previously used coding guide that identified major themes and issues from lay, bioethics, and public health discourses on CE (Forlini and Racine 2009b). This previous coding guide, used to analyze academic discourse and print media content, was modified and enriched to reflect the novel perspectives of focus group participants, especially regarding reactions toward CE and the media coverage, through pilot coding by both authors. The full transcripts were then systematically coded by one author (CF) and verified by another author (ER). Disagreements were settled by discussion and the achievement of consensus.

Figure 6.1 shows the overall methodological approach for coding and analysis of the ethical issues discussed during the focus groups. The complete coding guide captured many facets of the CE debate that were also part of the interview guide and focus group discussions. The first part of the coding guide captured stakeholder reactions to CE where they proposed definitions and reacted to the frequency and social acceptability of CE. The second part dealt with ethical, social, and legal concerns related to CE, including safety and efficacy, legality, potential risks and benefits, and other issues related to academic performance (e.g., authenticity and cheating). The third part explored social (e.g., abuse, autonomy, social meaning) and healthcare aspects (e.g., overprescription,

commercialization and injustice). The final part of the coding guide recorded perspectives on the media coverage of CE based on the prompt materials that were previously provided.

Within the codes for each of the ethical, social, and legal issues in the second and third parts of the guide, participants' statements were further categorized in order to identify participants' positions on the ethical issues (See section 1B of Figure 6.1). If a participant's statement expressed that the issue in question posed an ethical, social, legal problem or had a significant impact it was coded as an "affirmation". If, on the contrary, a participant's statement denied the existence of a problem or its impact, it was coded as a "negation". Statements that mentioned an issue but neither affirmed nor negated a problem, or represented both points of view were coded as "neutral". Likewise, if the statements clearly indicated that the speaker was uncertain, the code "neutral" was applied.

**Figure 6.1:** Methodological approach for coding and analysis of ethical, social and legal issues\* identified and discussed during focus groups.



In this paper, we report results on the following aspects of the debate over the ethical, social, and legal issues<sup>3</sup> around the non-medical use of MPH for CE: (1) abuse; (2) authenticity, identity and personhood; (3) cheating; (4) commercialization; (5) illegality; (6) injustice, access, and equality; (7) overprescription; and (8) social meaning. Issues of autonomy and potential for coercion to use medications for CE (Forlini and Racine 2009a) as well as stakeholder views on the safety and efficacy of using MPH for CE (Forlini and Racine In press) have been reported elsewhere (See Section 1A of Figure 6.1). These data are largely non-overlapping but the nature of qualitative data does mean that there are small convergences between the general data set reported here and more specific pieces of data previously published (Forlini and Racine 2009a; Forlini and Racine In press).

### *Analysis*

The analysis of coded statements was twofold. First, we examined the acknowledgement (or lack of acknowledgement) of a substantial ethical question for each issue to determine *whether* an issue was contentious or not. We then examined the positions taken (affirmation, negation and neutral) for each coded ethical issue as well as the specific arguments for each side to determine the *extent* of contention. . These specific arguments are presented in Table 6.1 as well as Figures 6.2-6.5. Bold italic fonts provide the broader reasons underlying the specific positions taken on particular ethical issues. The relative proportion and qualitative diversity of the arguments in the affirmation, negation, and neutral categories determined the extent (highly or moderately) to which a specific ethical issue was contentious or not. An ethical issue judged to be “highly contentious” had a comparable number of affirmation and negation statements or a rich variety of qualitative arguments pertaining to either

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<sup>3</sup> Subsequent mentions of “ethical issues” in the text should be taken to encompass ethical, social, and legal issues.

affirmations or negations. Typically, a highly contentious issue contained ethical debate about the underlying reasons for or against CE. An issue was categorized as “moderately contentious” if it was acknowledged as raising ethically significant questions but affirmations or negations occurred without substantial debate on the underlying reasons for or against the ethical issue. In this fashion, a moderately contentious issue indicated either a consensus issue among stakeholders or that the particular issue did not appear to raise a substantial ethical debate (Figure 6.1 section 2A).

The second level of analysis consisted in building a model of the relationships between the ethical issues (Figure 6.1 section 2B). Parsing the arguments given for the affirmations and negations of the ethical issues revealed specific arguments that often had common underlying values (personal effort, honesty, and equality), external factors (legal regulation, commercialization), or subsequent consequences (education, medicalization) of the non-medical use of MPH. The relationships were determined by looking for overlapping or related arguments to articulate a global understanding of how the ethics issues affected each other.

## **Results**

Sixty-five individuals participated in one of nine homogeneous focus group discussions: 29 students (S) (mean age 20.9 years; focus groups A, B, C); 21 parents (P) (mean age 53.8 years, focus groups D, F, H) and 15 healthcare providers (HCP) (mean age 31.9 years, focus groups E, G, I). The groups varied in size from three to eleven participants. Each participant was assigned an alphanumeric code (e.g., A1) where the letter identified the stakeholder group they belonged to and the number indicated the order in which they were recruited. Results from the demographic questionnaire showed that the majority of participants were female (68%; N=44/65; S: N=22; P: N=12; HCP: N=10) and had obtained or were in the process of obtaining undergraduate or graduate degrees

(86%; N=57/65; S: N=29; P: N=15; HCP: N=13). None of the participants was currently using a prescription for MPH, but 3% had had a prescription in the past and 11% of the sample had previously used MPH for non-medical purposes (Forlini and Racine In press). The commercial name of MPH, Ritalin, was used in the questionnaire because of its familiarity.

We first present the content of the issues stakeholders viewed as contentious and non-contentious. Then, based on our focus group data, we propose a model to describe the relationship between the ethical issues identified. Stakeholders identified many ethical, social, and legal issues related to the non-medical use of MPH for CE. For all issues identified, stakeholders more often “affirmed” and discussed the existence of problematic ethical aspects of an issue than “negated” these aspects. We segregated the issues in relation to how contentious they were – highly, moderately or non-, contentious. None of the issues were deemed non-contentious or unproblematic. (See the methods section above for the classification method.) Table 6.1 and Figures 6.2-6.5 indicate whether arguments were made by students, parents, or HCPs, but no significant qualitative differences in the discussion of the ethical issues between these groups were observed.

*Moderately contentious issues: Commercialization, overprescription, illegality, and abuse*

Our analysis shows that commercialization, overprescription, illegality, and abuse were essentially moderately contentious issues; participants tended to agree on the existence of a problem without strong quantitative or qualitative differences between affirmation and negation statements. Table 6.1 contains a summary of arguments made by participants on these moderately contentious issues and features some illustrative qualitative examples providing further context for each argument. No students expressed that potential commercialization of cognitive enhancers would be non-contentious, and participants across all groups agreed that the non-medical use of MPH was illegal.

**Table 1.1:** Qualitative examples illustrating stakeholders' perspectives on moderately contentious issues around the non-medical use of methylphenidate

Issue	Negation	Affirmation
<b>Illegality</b>	<p><b>Enhancement with MPH is likely illegal (S, P, HCP)</b></p> <p>“The way I see it is pretty straightforward. If it's prescribed to you then you can use it if not it's illegal (...).” (Student A6)</p> <p>“They are being sold on the black market so that in and of itself is illegal.” (Student D7)</p>	<p><b>Regulation about the use of MPH for enhancement is unclear (HCP)</b></p> <p>“I hope it is illegal. But I never heard of any law that said you can't take Ritalin if you don't have the prescription.” (HCP E1)</p>
<b>Abuse</b>	<p><b>Enhancement can be a proper use of medication if occasional and does not disrupt daily life (S, P, HCP)</b></p> <p>“(…) we've applied substances that we already know about to solve new problems so maybe this is just another classic problem that has to be solved. Abuse is a dangerous term.” (Student A7)</p>	<p><b>Enhancement is an improper use of medication (S, P, HCP)</b></p> <p>“I think it is abuse in this case, when you use the medication for another thing besides the purpose it is described.” (HCP E7)</p> <p>“Any drug can be abused and so, if it becomes obsessive then it becomes abuse.” (Student C6)</p>

<p><b>Commercialization</b></p>	<p><b>Medications for enhancement may not be lucrative since they cannot be marketed (P, one HCP)</b></p> <p>“I am not sure that this would be such an enormous money maker for the pharmaceutical companies. Students don’t want to line up to a kiosk and take drugs on a regular basis. Nobody wants to live like that.” (Parent H3)</p>	<p><b>There is a profitable market for medication used for enhancement (S, P, HCP)</b></p> <p>“If companies can put on market something that work even better than [Energy] pills and Redbull, then I am sure there would be a lot of people buying it.” (HCP G3)</p> <p><b>There are many conflicts of interests in the commercialization of medications (S, P, HCP)</b></p> <p>“you’ve got this whole pharmaceutical industry that’s living off of creating diseases.” (Student A9)</p> <p>“There is also the pressure of the pharmaceutical companies on the doctors. They just want the doctors to prescribe this now because the doctors and the companies will benefit from it.” (Student C7)</p>
<p><b>Overprescription</b></p>	<p><b>Overprescription is a misconception (one P, two HCP)</b></p> <p>“My girlfriend she is a teacher and she has 28 kids in her classroom and only one child in her classroom in on Ritalin. Ritalin has not taken over the classroom. It has not.” (Parent H2)</p>	<p><b>Medications used for enhancement, like MPH are readily available (S, P, HCP)</b></p> <p>“I think overprescription does have something to do with it because there are a bunch of people that are willing to sell their pills. So someone who gets it who really really really needs it for them self doesn’t have pills to spare.” (Student B2)</p>

\*Neutral statements are not presented here given their marginal quantitative and qualitative salience. S: Students; P: Parents; HCP: Healthcare providers



*Highly contentious issues: Authenticity of the individual, cheating, injustice and inequalities, and social meaning*

Authenticity, cheating, injustice and inequalities, and social meaning were highly contentious issues. Figures 6.2-6.5 show the contention about these issues in greater detail. In addition, discussion of two issues (authenticity and cheating) featured ambivalence. First, authenticity was discussed almost in equal proportion as a problematic (affirmation) and non-problematic (negation) issue. Authenticity was of interest across all stakeholder groups and produced arguments that were qualitatively oppositional (see Figure 6.2). In this case, the coexistence of conflicting perspectives on the issue of authenticity suggests that globally, ambivalence is the source of contention for this issue. We described this type of ambivalence as *substantial* ambivalence in contrast to *informational ambivalence* ( i.e., ambivalence caused by rather superficial misunderstandings, as has been discussed elsewhere (Forlini and Racine 2011)).

Second, participants manifested ambivalence, but perhaps more accurately indecision, regarding the issue of cheating (Figure 6.3). This issue was discussed as mostly problematic, but we observed a high number of “neutral” statements. With the other issues we examined, neutral statements were marginal (quantitatively and qualitatively), but in the case of cheating, neutral statements were salient (quantitatively and qualitatively). In these open-ended neutral statements, participants neither affirmed nor negated that cheating was problematic, and this suggests that indecision is globally prevalent as opposed to the articulated statements of ambivalence for the issue of authenticity. The neutral statements on cheating also showed that participants found it difficult to determine if using MPH was cheating as compared to other substances and practices.

**Figure 6.2:** Qualitative examples illustrating stakeholders' perspectives on the impact of non-medical use of MPH and the highly contentious issue of authenticity

***An individual that has used an enhancement still has to put in the effort to do their work (S, P, HCP)***      ***Enhancement may compromise the social and personal values that define identity and human nature (S, P, HCP)***

"...because even though it enhances your concentration and attention, the work, you're still doing it. It's not like if you get the exam and you get the answer in advance and you go to the actual exam and you copy the answer. ... . But the actual work, you're doing it just that you're saving time in a very advanced way." (Student A2).

"Ritalin doesn't seem to really enhance your intelligence and make you smarter it just kind of seems to be a different means of preparation that affects your organization skills" (Student B1).

"If this person took Ritalin and knows what he is doing then so be it. The ultimate judge will be if you can or cannot do certain functions. It has to do with ability. Is that not it?" (Parent D5).

***The performance and effort are authentic but unfair (S, P)***

"Well, this girl from my high-school, she was a really good student and everything, but I found out that she took Ritalin before she took her SAT's and she did do significantly better. ... .The general opinion was that it was unfair but you could also say that she did put in a lot of work in general school for four years. That might have had more to do with it than her one SAT score." (Student C4).

***Authenticity, in comparison, is not questioned in the medical context (S)***

"I mean, if you said taking Ritalin would make the work not yours then you would have to say anybody who had ADD or ADHD and who was on Ritalin didn't do their work, nothing they did was theirs and I don't think that's right." (Student B7).

"... but eventually when you look at the person you lose your identity... You've done everything possible to make yourself the best in the world. So where is the person? What are we looking at? Something that science has created? Some clone of yourself?" (Student A8).

"I think that we are losing the real value of a human being by being a machine or being too performance [oriented]." (Parent F2).

***An enhanced individual does not work as hard (S, P)***

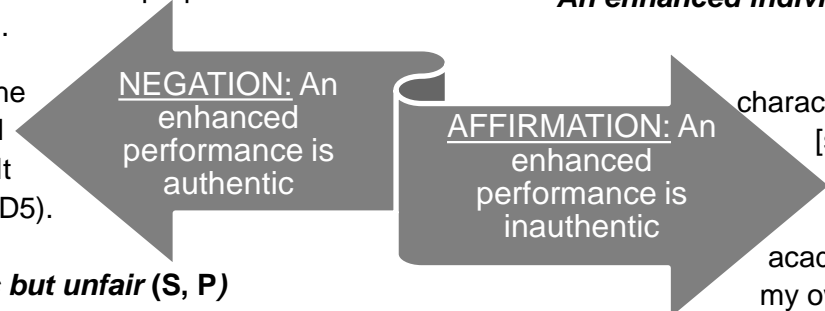
"I think I finally understand that line "It builds character". I think it's sad in a sense to lose that that [sic] character that you get out of working long hours by yourself and figuring out your study skills. And if I look back on my life I'm at the academic point that I am today because I did it on my own and I worked those long hours and I didn't use Ritalin and I think it's sad that society doesn't admire that as much today." (Student B8).

"You can keep taking it but you can't fake that intelligence, fake that knowledge" (Student C5).

***An individual who has used an enhancement misses out on learning certain skills (HCP)***

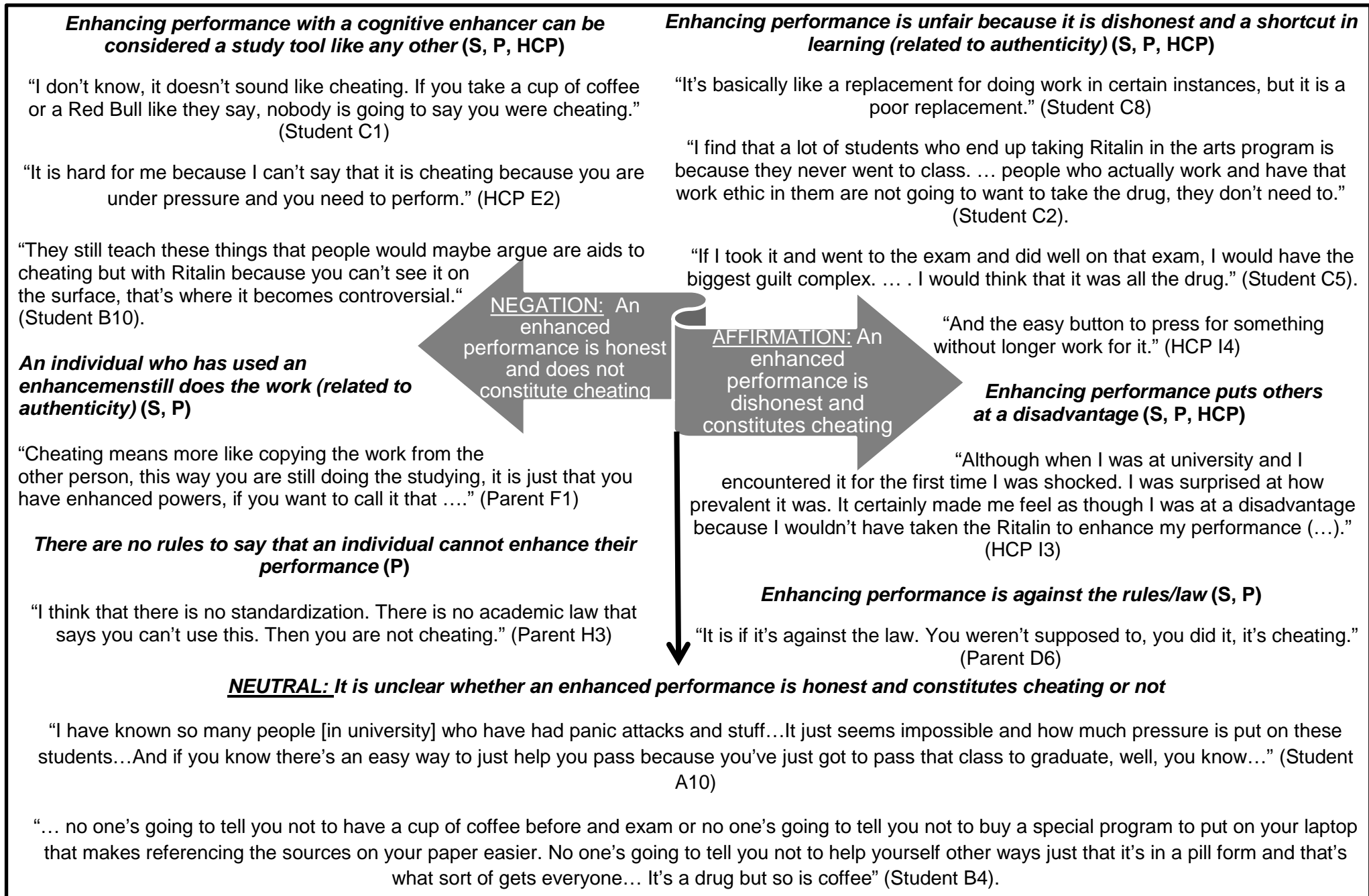
"I am concerned as well for the lack of coping strategy that people are not developing through life. So their ability to cope with stress is really less because they always need that pill to cope with everything." (HCP E2).

"Drugs can't teach us thinking. The university study must be about how to think. Now people don't need to remember so much knowledge. Knowledge is everywhere, internet is easy access to everything." (HCP I4).



\*Neutral statements are not presented here given their marginal quantitative and qualitative salience. S: Students; P: Parents; HCP: healthcare providers

**Figure 6.1:** Qualitative examples illustrating stakeholders' perspectives on the impact of non-medical MPH use in the academic context on the highly contentious issue of cheating



**Figure 6.2:** Qualitative examples illustrating stakeholders' perspectives on the impact of non-medical MPH use in the academic context on the highly contentious issue of justice\*

***Individuals who seek it will find it (S, P, HCP)***

"I think in terms of fair access if you want it bad enough you will find a way to get it, period. Illegally, legally, whatever it might be, (...)." (Student B10)

***Injustice is innate in society (S, P)***

"I feel like we can minimize it but you can never ever get rid of that. And on another note that you guys were talking about putting people at the same level theoretically that's impossible because there are always people who have just natural abilities and are better than others and you can obviously never get rid of that but you can get rid of the part where those abilities are drug-enhanced." (Student A6)

"(...) what if we even the playing field and make everything available for everyone: steroids, Ritalin, plastic surgery and everyone looks great and can concentrate for 20 hours and has muscle mass like Barry Bonds are you even really leveling the playing field then because it's about character and values and not about you know whether you have the muscle to do it or the drugs make you better? ... if you make it available the choice to take the drug is up to the person and if it's available to everyone and everyone does take it there's still going to be someone who stands out in all that and it's not the drug that did that." (Student A1)

**NEGATION:** Access to MPH does not impact the fairness of an enhanced performance

**AFFIRMATION:** Access to MPH impacts the fairness of an enhanced performance

***Enhancement can cause unfairness and cause individuals to feel they are at a disadvantage (S, P, HCP)***

"If you are saying that Ritalin enhances performance then there is obviously an unfair advantage for the students who are taking the drug vs. those who don't have access." (Parent D7)

***Resources are being diverted from patients in terms of medication and medical attention (S, HCP)***

"People are going to doctors wasting their time trying to find the one doctor that is going to give them a prescription for Ritalin or however they get these pills and this is public money that is wasted. And whenever you waste a dollar of public money that takes a dollar away from somebody who needs it more: somebody who was just hit by a car or whatever chronic illness they have." (Student A5)

***Cost of medications used for enhancement can be a limiting factor for individuals (P)***

"I have no idea but what is the cost of Ritalin? Is it expensive, is it cheap? They say that it is obtained on the black market. I am wondering what happens in a class where you have students that can't afford the cost of this drug." (Parent D7)

\*Neutral statements are not presented here given their marginal quantitative and qualitative salience. S: Students; P: Parents; HCP: healthcare providers

**Figure 6.3:** Qualitative examples illustrating stakeholders' perspectives on the impact of non-medical MPH use in the academic context on the highly contentious issue of social meaning\*

***The changes in education are a part of a natural progression of assimilating new technology (S, P)***

“Like all the advances that we have and like technology and medicine and like literature and a lot of it and stuff is because people have time to do other things because we have technology because people don't have to spend hours looking in a dictionary because we have spellcheck so you know (...) .” (Student B7)

***Enhancement is bringing about changes in the goals of education (S, P, HCP)***

“I think that it has taken education and made it equivalent to performance. (...) you take a course, you go to university, or you finish a class and six weeks later you don't know what you have learned. You don't have to know what you have learned because the whole point was to pick up that information, regurgitate that information on a test, spit it out on the essay, put it in the final (...) .” (HCP I3)

***Enhancement may have an effect upon professional life beyond school (S, P)***

“When they will graduate they will go on the market and they will keep on having trouble and they will have learned to solve their problems with the drug so I think that is a social problem that these students that are abusing don't learn.” (Student A2)

“I think it's an interesting thought to wonder if maybe you can enhance the performance of certain professionals maybe like I guess a brain surgeon. ... . Like if you're more alert and focus better like maybe it'll help your purpose.” (Student B1)

**NEGATION:**  
Enhancement of academic performance with MPH is not bringing about changes in society

**AFFIRMATION:**  
Enhancement of academic performance with MPH is bringing about changes in society

***Social emphasis on performance (S, P, HCP)***

“I am concerned about the tolerance that, not the tolerance but if we get used to the feeling of being on Ritalin, (...) . I wonder how they are going to conceptualize human performance, just the normal human performance. (...) . I am afraid that there is going to be a new norm of performance ... .” (HCP E2)

***Society is already performance-based (P, HCP)***

“It is already performance based, school right now is performance based. If you want to do a master's or a doctoral degree well you have to have the best grade. (...) it is already based on performance. I am not sure that Ritalin is going to change that because it is already like that.” (HCP E1)

***Using medication for enhancement medicalizes performance and acts as a “quick fix” for problems that are not necessarily biological (S, P, HCP)***

“For many many of our common, everyday problems we have: the solution resides in the pill.” (Student A5)

***Changes caused by availability of prescription medications for such uses (S, P, HCP)***

“It just hit me right now maybe this whole situation with Ritalin is the canary in the coal mine. Shouldn't we be worried about how readily accessible pharmaceutical drugs are to the population? ... . Obviously this system isn't working that well if we're having a whole conversation today on how easily accessible a prescription drugs is to students to take for a non-prescription purpose.” (Student A5)

***Concern for the public health messages that are being sent through enhancement practices (S, one P)***

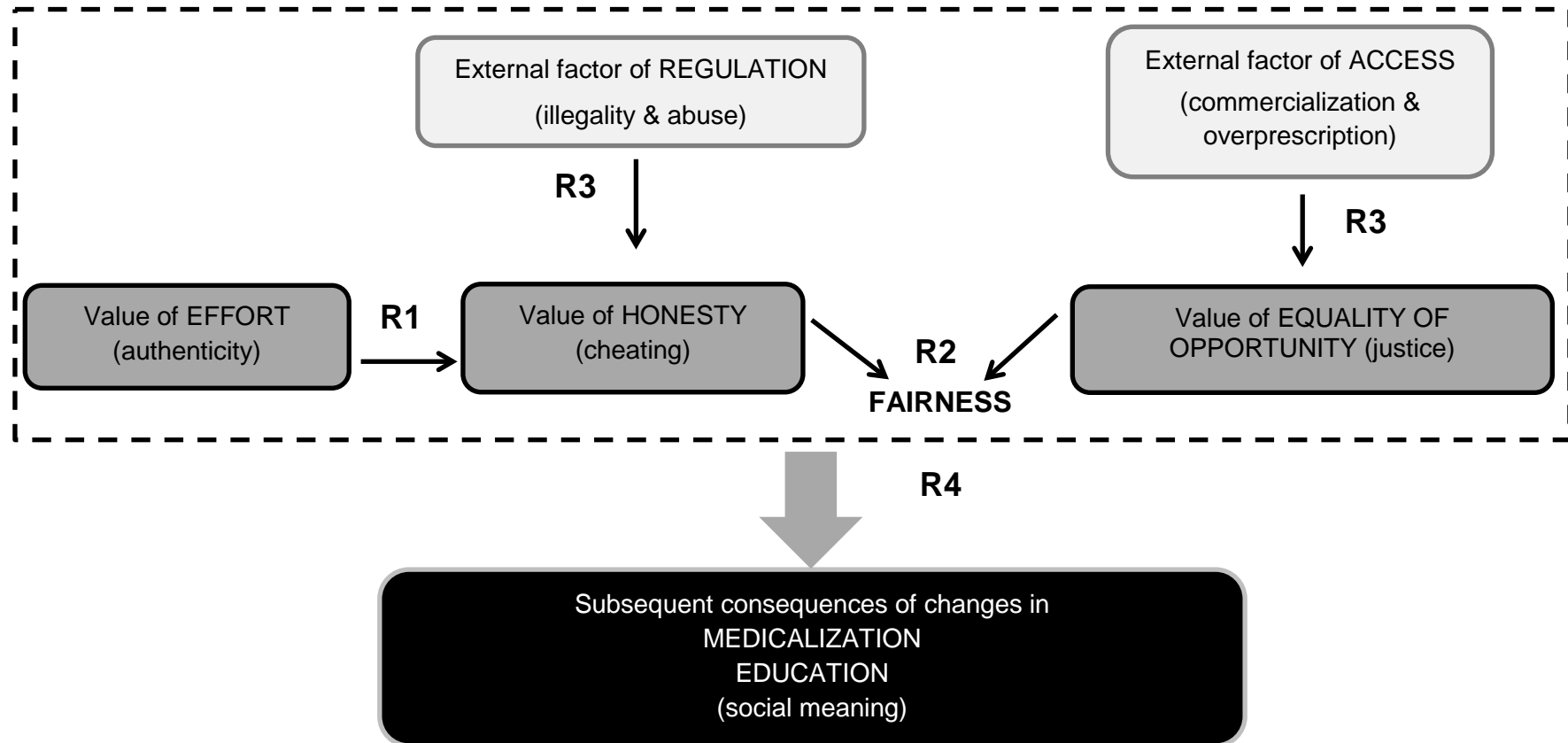
“I would have a problem with society sending the message that you need this drug to do your best. And that's ultimately the message that's being sent if you make it open, available like candy jars full of Ritalin.” (Student B8)

\*Neutral statements are not presented here given their marginal quantitative and qualitative salience. S: Students; P: Parents; HCP: healthcare providers

*Identifying a model describing the relationships between ethical, social and legal issues*

In discussing the ethical, social, and legal issues related to the non-medical use of MPH for CE, participants in our focus groups expressed that these issues were inextricably linked to certain values, external factors, and subsequent consequences. Specific values contributed to positioning issues as problematic or not. Figure 6.6 captures the relationships between issues and specific values. In conjunction with Figures 6.2-6.5, this model demonstrates how the highly contentious issues (authenticity, cheating, justice, and social meaning) represent values that affect individual and social decisions, while the moderately issues seemed to act more as external factors (legislation, markets, medicine) that affected these decisions. We further describe the relationships schematized in Figure 6.6, and readers should use the figure as a guide to the following explanations on the four relationships described in the model.

**Figure 6.4:** Model of ethical, social, and legal issues and the underlying values identified by stakeholders that cause these issues to be contentious



Effort-authenticity relationship (R1): Effort is linked to the underlying belief that work put into an activity contributes to shaping personal identity and being an authentic individual.

Honesty-equality of opportunity relationship with fairness (R2): Fairness is defined by the values of honesty and equality of opportunity responds to social and interpersonal aspects of CE (i.e. the effects of an individual's behaviour on that of others).

External factors relationship (R3): The regulation derived from legislation and medical practice that dictate what constitutes a proper use of a medication and the channels through which performance enhancers are accessed are two key factors that shape the values of honesty and equality of opportunity. These factors are different from the values discussed earlier because they rely more heavily on norms established by government, professional societies, and the pharmacological industry.

Society-performance relationship (R4): The complex ethical landscape of the non-medical use of prescription medication for performance enhancement is causing problematic social changes and creating an overarching concern for the altered meanings of performance and achievement as well as the role of medicine (medicalization) and education.

Effort-authenticity relationship (R1): Effort is a constitutive element of an authentic academic performance

University students, parents, and healthcare professionals largely defined authenticity in terms of the effort that an individual has to exert in order to achieve and succeed. Effort is linked to the underlying belief that work put into an activity contributes to shaping personal identity and character (Figure 6.2). Consequently, when prescription medications are used as cognitive enhancers, the effort-authenticity relationship is jeopardized and perhaps discounted. A discounted effort, in turn, potentially results in an individual who betrays his or her current personal values and beliefs. It also affects the “future” individual who has not gained the experience of effort he or she would have had without the enhancer. The difficulty, however, remains in how to measure the effort and its distinctive contribution to the authenticity of a performance. In the words of HCP I3:

[Y]ou have individuals that, you know, definitely start out with a deficit and Ritalin let's say brings them up to average. Then you have individuals who are starting out as average and it brings them up above average. Then you have individuals who are above average and it brings them up to another level. So, I mean, it is such a sliding scale in terms of, is it still your performance?

The effort-authenticity relationship we have outlined in our analysis largely relies on the assumption that ethical judgement is an individual and internal norm. It also assumes that an individual would be conflicted in the choice to take an enhancer or not and that effort is the only way to develop or change one's identity authentically.

Honesty-equality of opportunity relationship with fairness (R2): Honesty and equality of opportunity confer two distinct meanings to fairness

Fairness was identified by stakeholders in our focus groups as a major issue. Analysis of the use of “fairness” showed that it referred to two values: honesty and equality of opportunity. On the one hand, fairness was defined by the value of honesty and the issue of whether using MPH to enhance academic performance constitutes cheating. On the other hand, fairness was defined in terms of equality of opportunity to obtain MPH (or other such cognitive enhancers) and opportunities deriving from its use.

Fairness as defined by the values of honesty and equality of opportunity responds to social and interpersonal aspects of CE, that is, the effects of an



individual's behaviour on that of others. For example, questions of fairness arose when the performance of an individual using a prescription medication was compared to an individual who did not in terms of (1) the perceived effort required and (2) whether both parties had the opportunity to access the prescription medication. The comparison of the outcomes of individuals who engage and abstain from using prescription drugs to enhance cognitive performance is what, in this case, seems to render what has been considered a personal choice ethically problematic. Those who enhanced their performance and succeeded were perceived by a group of participants to (1) not have put valuable effort into their performance and (2) gained an advantage because of an opportunity that was not available to all.

### External factors relationship (R3): External factors affect individual and collective ethical opinions and behaviours

Another component in the model of interaction between issues and underlying values are the external factors that participants identified as influencing the ethics of the non-medical use of prescription drugs for CE. Participants identified two key factors: (1) regulation derived from legislation and medical practices that dictate what constitutes a proper use of a medication and (2) the channels through which performance enhancers are accessed. These factors are different from the values discussed earlier because they are norms or practices established by government, professional societies, and the pharmacological industry. In the first case, regulation had a substantial impact on what was perceived as fair. For example, some stakeholders questioned whether their perspectives about fairness might be different if the regulations were clearer. As one student commented,

“[m]y gut instinct is to say it is cheating, that is what I would go for first and foremost. The question I would have for everyone is if these pills were legal and available would it be ethical to take it? Is it the illegality that makes it seem unethical to us? Is it the availability, is that all?” (Student C9)

The other external factor, access, illustrates that stakeholders expect that the pharmaceutical industry and the prescription practices of some physicians could be causing an increase in access to drugs like MPH, which, in turn, increases the prevalence of the non-medical use and results in further social consequences.

Society-performance relationship (R4): A subsequent consequence of broad social use of cognitive enhancement is a change in the meaning of performance and achievement

Our data pointed to many ways that participants believed that the non-medical use of prescription medication for CE was both bringing forth and resulting from broad social change. Stakeholders described CE as a problematic social change and expressed an overarching concern for how the non-medical use of prescription medication for performance enhancement changed what it means to perform well and achieve. There were concerns that the non-medical use of prescription medications encouraged the medicalization of performance and ultimately, medicalization of health more generally. In contrast, it was also suggested in the focus groups that health concerns should actually be focused on mental health more broadly and not on the pressure to perform using cognitive enhancers. In the words of a student participant discussing the use of Prozac for enhancement purposes: “I haven’t seen a focus group about students who are depressed, which I think might be an even bigger problem because with depression you can’t even get out of bed and do your work” (Student C2). Furthermore, according to participants, the importance of authenticity seemed to impact how society approaches education and training for the workforce.

## **Discussion**

In this study we identified ethical, social, and legal issues (e.g., authenticity, cheating) related to the non-medical use of MPH for CE from the point of view of university students, parents, and healthcare providers. In addition to identifying and describing these issues in depth using a qualitative methodology, we closely examined supporting arguments from these stakeholders. These arguments informed the positions taken by stakeholders to affirm or negate that these were ethical issues (Figures 6.2-6.5). Our results suggest that the ethical issues we identified in the focus group discussions with stakeholders were similar to those identified in a previous discourse analysis of the bioethics literature (Forlini and Racine 2009b). This previous analysis showed that stakeholders had divergent perspectives about the acceptability of CE as a practice based on conceptions of autonomy of the individual; however, they recognized the potential constraints of personal choice based on social pressures for performance (Forlini and Racine

2009a). These findings framed the way in which stakeholders value personal integrity (authenticity) for the individual and his or her performance but also acknowledged that there are social causes and consequences to CE.

However, in this paper, closer observation of the nature and proportion of arguments in stakeholder perspectives on a broad range of ethical issues allowed us to deepen our understanding of the perspectives on authenticity, social meaning, and other issues, while observing the existence of two levels of contention as well as factors and values underlying the issues identified (Figure 6.6). In the following section, we explore the underpinnings of different levels of contention, highlighting the important role that the concept of self-identity plays in stakeholder perspectives alongside the values of authenticity, honesty, and equality of opportunity. We then explore how such concepts and values are or could be captured in policies about CE.

The limitations of our focus group study have been discussed in previous publications of other data (Forlini and Racine 2009a; Forlini and Racine In press). This paper presents distinct data and incorporates an added level of analysis for identifying moderately and highly contentious issues. As a result, the model of interaction depicted in Figure 6.6 may be considered as a model for use in hypothesis generation as opposed to hypothesis testing.

*Understanding the underpinnings of the different levels of contention in stakeholder perspectives on the ethics of CE and the central role of authenticity*

In our study, moderately contentious issues (i.e., commercialization, overprescription, illegality and abuse) were typically issues where there was consensus among stakeholders about whether a substantial ethical problem existed. For example, participants agreed that access to prescription drugs used as cognitive enhancers is ethically problematic because it is currently facilitated (in their view) by overprescription by physicians and increases the potential for further commercialization of these drugs. At a deeper level, we observed that moderately contentious issues were tightly coupled with external factors (Table 6.1 and Figure 6.6). For example, issues such as overprescription and commercialization showed how the external factor of access to medications can jeopardize the value of equality of opportunity. Likewise, the issues of illegality and abuse were associated with the external factor of regulation that influences what is considered honest. In this

fashion, the moderately contentious issues and the factors they are identified with seem to exert an external influence on the ethics of CE that may make stakeholders feel like CE is highly prevalent in their environments.

In contrast to moderately contentious issues, highly contentious issues (i.e., authenticity of the individual, cheating, injustice and inequalities, and social meaning) prominently featured ethical debate about the effects of non-medical use of MPH and how these effects might shape the arguments for or against their use. On these issues, stakeholders debated intensely between competing arguments. An example of this type of debate is whether CE can be considered cheating. On the one hand, a cognitive enhancer could be comparable to another study tool and which still requires the individual to do the work themselves. On the other hand, CE could be dishonest, constitute a short-cut in learning, and put others at disadvantage (Figure 6.3).

As indicated in our methodology, the designation of “highly contentious” hinges more on the existence of a rich variety of *qualitative* arguments pertaining to either affirmations or negations and not necessarily a strong *quantitative* disproportion between the two types of statements. Contentious issues like cheating and social meaning raised questions revolving around the perhaps more intrinsic questions of “Who are you?” and “Who do you want to be?” The answers to these questions can draw upon both individual and socio-cultural preferences. These questions address the prominent concern that stakeholders in our study had for the effect of the substances used for CE on their academic performance and ultimately their self-identity and authenticity.

We suspect that the link with the personal concept of self-identity and authenticity could partly explain what distinguishes or even causes an issue to be highly contentious. Our own study, because of its design and limitations, falls short of answering this question. However, other stakeholder studies have specifically examined the issues of authenticity, fairness, and autonomy and provide support for this hypothesis, which helps to explain different perspectives and understanding of these issues among stakeholders. The concern for authenticity has been shown to impact stakeholder willingness to use and ban enhancers and has important interactions with other values (Sabini and Monterosso 2005; Riis, Simmons and Goodwin 2008). Enhancement of mood, emotions, and memory are seen to have more of an impact on self-identity than enhancement of attention and concentration,

just as enhancement by prescription medications were thought to have more of an impact than *natural* means (e.g., natural products and mental training exercises (Sabini and Monterosso 2005; Bergstrom and Lynoe 2008; Riis, Simmons and Goodwin 2008)). In scholarly writings, the value of effort which contributes to authenticity also has great importance, and it binds opposing opinions on the broader ethical landscape of CE (Parens 2005). Both proponents and critics of CE agree that self-identity should be preserved but diverge in their perceptions of whether it is damaged by an intervention that enhances any aspect of cognition.

An issue like authenticity could become even more important and complex when it is put into a social context to consider equality of opportunity. Our qualitative analysis (Figure 6.6) suggests that fairness was defined by a relationship between effort and honesty, as values, with the value of equality of. In other words, a complex combination of internal and external influences appears to shape perspectives on fairness. Our own data does not allow us to go further than generating this hypothesis, but a survey study by Sabini and Monterosso provides additional perspectives. They asked undergraduate students at the University of Pennsylvania to rate the fairness of certain academic situations involving performance enhancement with medications. The majority of students that participated in that study thought that using a substance was fair if it acted as a *normalizer* to help the bottom 10% of the population as opposed to an *enhancer* that helped normal or high functioning individuals (Sabini and Monterosso 2005). In this respect, students felt that it was fair to help underperforming individuals gain access to opportunities that normal or high performing individuals can access.

The concept of a normalizer can be taken one step further in that a cognitive enhancer can also be considered an “enabler of one’s true self” (Riis, Simmons and Goodwin 2008, p. 505) to realize one’s full potential as a way to gain fair access to desired opportunities and achieve goals. This argument about the acceptability of normalizers as opposed to enhancers has also been voiced in the bioethics literature (Sandel 2004; Levy 2007). However, the choice to use a cognitive enhancer has been described by stakeholders and popular works of fiction as influenced by pressures to compete and succeed in society; external factors are therefore important considerations in the choice to enhance or not (Forlini and Racine 2009a; McKenna 2011). In this fashion, the authenticity-related question of “Who do you want to be?” is in part dictated by the pressure exerted by these external factors

(e.g., “What does society want me to be?” and “Who do I need to be to perform, succeed and to some extent comply with social expectations?”).

The stakeholder perspectives we gathered suggest that CE challenges certain fundamental values held by individuals as well as society. We argue, based on our own data and that of others, that a high level of contention surrounding issues in CE may be explained, at least in part, by the important value of effort and the related value of authenticity. However, an issue such as fairness likely introduces interplay between both the internal and external factors reflected in our data. Our discussion points to a perhaps unsuspected complexity, when compared to academic debates, in understanding the relationship between different values and issues brought forth in the CE debate as well as an important role of certain core values in opinions about CE. The next section examines current policies on CE and whether it is at all possible to capture the current complexity of stakeholders’ perspectives about CE in them.

#### *Shaping policy with stakeholder perspectives?*

The important academic debate surrounding CE, coupled with substantial media coverage of prevalence studies and opinions about the efficacy of medications used for CE, have led different professional and regulatory bodies to further examine policy and regulatory aspects of CE for clinicians and society at large. For example, the British Medical Association surveyed some of the ethical issues associated with CE and developed a discussion paper on CE, although the goal of the paper was perhaps less intended to guide clinicians than to contribute to fostering public discussion on CE. The report of the Commission de l’éthique de la science et de la technologie from Québec, Canada (Commission de l’éthique de la science et de la technologie 2009) issued a report that was developed as a contribution to public debate but also offered specific recommendations for governmental authorities and clinicians. The report recommended increasing education for clinicians about CE and ensuring monitoring of the current public health situation (Outram and Racine 2011). Perhaps the most concrete and directive guidelines were proposed by the American Academy of Neurology (AAN), which was created specifically to inform and guide neurologists in their practice in response to requests from adult patients for cognitive enhancers (Larriviere et al. 2009). But even the AAN left ample room for individual

clinicians to determine their own positions and understanding of the ethical acceptability of CE by stating that “prescription of medications for neuroenhancement occurs within the physician-patient relationship” and that CE is neither legally nor ethically obligatory in addition to being legally and ethically permissible (Larriviere et al. 2009, p. 1408). Given its more concrete and specific focus, the attempt of the AAN to counsel clinicians is perhaps the best starting point to examine if and how concerns of stakeholders are and can be taken into consideration in policies.

The guidelines published by the AAN about CE were innovative and among the first to advise a group, in this case medical professionals, on how they might approach requests for neuroenhancement. In the end, the AAN’s position was largely non-directive, putting the onus on individual neurologists to evaluate the request of the patient, much in the style of a request for medical treatment. From this perspective, these guidelines adopted a *moral acceptability* approach by examining CE, “within an existing framework while respecting social and legal obligations” (Racine 2010, p. 124). A moral acceptability approach captures *extrinsic sources of morality* such as the law, social consensus, and socially accepted norms. This stance brings forth questions of what clinicians *can* do instead of whether or why they should be involved.

In seeking to map out what is permissible, guidelines and policies like the one proposed by the AAN do not clearly capture the full complexity of substantial values and concerns like those brought forth by the CE debate and discussed by stakeholders (and in this case patients). For example, we found that effort and authenticity as well as self-identity are very important considerations for stakeholders. The salience of these issues intersects with the existence of an important body of theoretical and philosophical literature on CE on the topic of authenticity and self-identity (Parens 2005; Bolt and Schermer 2009; Bublitz and Merkel 2009). Some of the more *intrinsic sources of morality* (of both clinicians and patients) may have been skimmed over in the AAN guidelines. Intrinsic sources of morality (e.g., empathy and self-reflection) are key in determining *moral praiseworthiness* and deciding, “if we should morally and ideally pursue cognitive enhancement” (Racine 2010, p. 125). In contrast, the AAN guidance is rather procedural and leaves different options open, doing little to arrive at the crux of what may cause moral unrest for clinicians and patients.

Our analysis should not be read as direct criticism of the AAN's guidelines as such but rather as pointing out that guidance by professional bodies like the AAN can only be a partial response to a problem which calls for a more comprehensive and global approach. We wish to highlight the difference between what the guidelines set out to do and the type of reflection we observed among our participants. This difference brings us to recognize a potential limitation in the reach of debates held within specific contexts, such as the medical context of the AAN. Perhaps the AAN guidelines or the physician-patient relationship are simply not the venue to discuss values like effort and self-identity. However, in spite of this limitation, we should not understate the importance of opening up clinical conversations to different attitudes and opinions about CE as proposed by the AAN in its guidelines. This is considerable progress in contrast to a more paternalistic or authoritative stance that would state for patients and clinicians what is the best ethical decision to make, or even worse, simply dismiss the topic of CE.

At the same time, one can only be partially satisfied by the procedural nature of such guidance given the stakes at hand. Examining the moral acceptability of CE as the AAN has done is an initial way to determine the morality of CE. However, it is but a partial answer to the CE problem and its complex nature. We have ourselves commented that this guidance seemingly lacked awareness of the broader ethical and social issues surrounding such requests (Racine and Forlini 2010) despite the guidelines' authors maintaining that these factors were considered during the genesis of this publication (Larriviere and Williams 2010). Indeed, issues like autonomy and justice were mentioned in the guidelines but lacked the type of consideration that would have been informed by a second moral parameter looking at moral praiseworthiness by incorporating some reflection on contentious values or even the external factors which indirectly relate to the type of socio-economic environment in which CE is developing (Racine 2010).

Consider, for a moment, how the AAN guidance may have changed if some of the values outlined in Figure 6.6 that are pertinent to the medical context were part of the recommendations. Neurologists are encouraged by the AAN to rule out any underlying medical condition in a suspected request for cognitive enhancers. Once this is done, the physician-patient conversation exits the realm of the core traditional goals of medicine, bringing in a host of other questions of a more social nature to determine whether CE is appropriate not only for the patient but perhaps also for the



profession and society. In the case of patients, such a request may be motivated by social pressures to perform in academic or professional environments (Teter et al. 2005; Rabiner et al. 2008; Forlini and Racine 2009a). According to the AAN, physicians, as the gatekeepers for medications, are not ethically obliged to prescribe or withhold cognitive enhancers for CE and thus must also reflect upon how to deal with requests motivated by social pressures within their practice. These questions go beyond what is presented in the AAN's discussion of patient autonomy and the clinician's responsibility to protect the patient from the potential harms of CE related to the medications, of which the side-effects are unclear.

As found in our study, a related contentious issue of importance to stakeholders is that of medicalization. The AAN defines "neuroenhancement" as "prescribing medications to normal adult patients for the purpose of augmenting their normal cognitive or affective function" (Larriviere et al. 2009). However, what is missing from this definition is a discussion of how the definition of health has changed and may continue to change over time. The committee might have taken the opportunity to clarify their position on the treatment-enhancement distinction and the goals of medical practice within neurology.

The strict discussion within the context of neurology brings yet another contentious issue to the surface, that of justice and the value of equality of opportunity. The AAN guidance recognizes that CE may fall into the "lifestyle drug" category that is available to those who can afford it. However, even before that, access to the neurologists who prescribe these drugs could be limited in certain healthcare contexts. These are but a few possibilities that illustrate how the values articulated by participants in our study might lead to policies that are not circumscribed by what is acceptable in existing legal and ethical frameworks.

More open-ended and societal efforts could help develop creative ethical approaches to CE. The goal would be to not only ensure a form of moral acceptability (like the AAN guidance) but to also capture deeper questions about the moral praiseworthiness of CE to bring both extrinsic and intrinsic sources of morality into the debate (Racine 2010). Recent empirical research about the values held by stakeholders in their reflection on the ethics of CE could inform such thinking.

Dewey's concept of social intelligence, or democracy, is an apt concept to capture how stakeholder values are important to consider in ethical debates such as the one around CE. The ways in which individuals will arrive at these actions, Dewey

proposes, is through deliberation which is, “an experiment in making various combinations of selected elements of habits and impulses, to see what the resultant action would be like if it were entered upon” (Dewey 1922, p.190). In this sense, deliberation requires that issues be considered as a function of the different values of those involved, an endeavour more akin to seeking moral praiseworthiness than moral acceptability or “what is expedient, politic, prudent, measured by consequences” (Dewey 1922, p. 189).

The data we collected through focus groups is evidence that stakeholders are still engaging in deliberation about the ethics of CE and are far from making a choice about whether CE will become a custom. However, the concerns and values of the stakeholders do not come through if one relies only on professional groups for guidance regarding CE. Perhaps what is needed is a subsequent collaboration of professional associations with the humanities for a joint deliberation such that moral acceptability and praiseworthiness are examined jointly from both points of view. Bioethics is an appropriate venue to bring these perspectives and disciplines together.

## **Conclusion**

Our findings bring to light contentious issues in the ethics debate around CE and their underpinnings from the point of view of stakeholders. Issues that were moderately contentious were found to be associated with external factors while these external factors shaped perspectives on the set of highly contentious issues. Highly contentious issues were accompanied by divergences in fundamental values such as effort, honesty, and equality of opportunity that stakeholders thought had a broader impact on health and education. The collision of these values and external factors in the deliberation of stakeholders brings a new dimension to the CE ethics debate that calls for reconsidering the directions of the debate in academia and policy. These discourses have been limited to mainly examining the moral acceptability of CE yet have been interpreted as a global response to a question that research has shown to be much broader and deeper than “can we or can’t we?” One such new direction is to turn the gaze of current ethics discourses toward the moral praiseworthiness of CE that would pay closer attention to different sources of

morality and the values that accompany them when determining the possibilities for the best ethical approach to CE.

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