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Consistency and Inconsistency in Adolescents' Moral Reasoning

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Authors in the cognitive developmental tradition (e.g. Damon & Hart, 1988; Snyder & Feldman, 1984; Turiel, 1983) have created models to explain transition between stages of development. This study introduces consistency and inconsistency of moral reasoning as patterns of moral thinking and presents implications for moral education. Consistency and inconsistency are determined by the level of "stage mixture" scored on the Defining Issues Test. A 2 × 2 quasi-experimental design was created. Participants were 52, 15-year-old male high school students. Moral judgement was the dependent variable. Consistency, inconsistency, and the experimental procedures were independent variables. Results showed a significant interaction between levels of consistency and educational methods ($P < .014$), a developmental progression for the condition inconsistent experimental ($P < .004$), and a predicted pattern of change for the condition consistent experimental ($P < .001$). The authors concluded that consistency and inconsistency of moral reasoning require different assumptions for the promotion of moral development.

Can one design educational programmes to foster moral reasoning development, in a cognitive developmental tradition, without attention to processes of transition (Damon, 1980; Snyder & Feldman, 1984; Turiel, 1969, 1983)? Recently, Lapsley (1996) and Rest and Narváez (1994) reaffirmed the necessity of continuing the discussion about processes of development between stages. These authors accounted for the validity of theoretical assumptions and provided a careful review of moral education and moral

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psychology. According to these authors, the answer to our question is: Yes! short-term interventions and long-term educational programmes are valid ways to foster moral reasoning development in many different contexts (e.g. high school curriculum, college level, applied professional ethics for career performance, etc.) In this study, however, we decided to continue a debate regarding the internal processes of development between stages. In addition, we advocate that moral education programmes in the cognitive developmental approach should account for differences in the process of transition between stages.

Considering the developmental progression between stages, the concept of structural holism (Lapsley, 1996; Piaget, 1975) implies a content-free, unidimensional structure of knowledge wherein development is the whole transformation of the stage structure. This attributes holistic properties to stages of development and suggests discontinuity or sudden transformation of cognitive structures from one developmental stage to the next. Researchers have long acknowledged these assumptions do not conform to all empirical data, and have questioned the validity of the structural holism as opposed to a domain-specific organisation of knowledge wherein development is domain-specific and occurs in transitional processes.

The Kohlbergian model of moral development assumes that moral reasoning is logically connected in a sequence of six stages (see Table 1). Each stage contains a singular structure of reasoning that is content-free and used across different moral contexts. Each new stage implies a higher level of reasoning and great adaptability across the contexts of all previous stages. For Kohlberg, development in the sequence of stages is a function of cognitive conflict observed by changes in modal stages. This is one's predominant kind of reasoning when considering moral issues. The empirical observation of age-related changes in modal stages is a strong support for the notion of structural holism. However, the question remains: What is the process of change from one modal stage to another?

TABLE 1
The Kohlbergian Sequence of Moral Development

Levels	*Stage*	*Orientation*
Pre-conventional	1	Avoid punishment. Obedience.
	2	Individualism. Self-interest. Instrumental change.
Conventional	3	Interpersonal norms. Loyalty to closely related groups. The good boy/girl morality.
	4	Social conventional morality. Obedience to law, justice, duty, and conformity.
Post-conventional	5	Individual rights. Social movements. Freedom. Liberty.
	6	Universal ethical principles. Universal human rights. Individual consciousness.

Turiel (1969, 1983) observed the progressive sequence of moral reasoning as proposed by Kohlberg (1984). According to Turiel, the process of transition between stages occurs in the gradual transformation of structures: There are higher levels of *stage mixture*, followed by a gradual increase in the percentage of use of modal stage (i.e. low mixture); that is, a period of stabilisation. The concept of stage mixture then, accounts for the distribution of reasoning in more than one stage, and can be estimated by the percentage of use of modal stage. Finally, a typical distribution of reasoning in the stabilisation period shows: (1) 50% of reasoning (or more) in a modal stage; (2) low scores on previous stages; and (3) even lower scores on later stages. This is observed in measures of comprehension of moral reasoning, particularly in a population of adolescents and young adults. Thus, levels of stage mixture have become a predictor for periods of change and stability in development between stages.

Following Turiel's work, researchers have refined the observation of the process of stage mixture to define configurations that are better predictors for development. For example, Damon and Hart (1988) have considered stage mixture when working with changes in children's social reasoning. They distinguished and compared three different configurations: (1) *total mixture*, which is similar with Turiel's stage-mixture notion; (2) *positive mixture*, which is the level of mixture above the modal stage; and (3) *negative mixture*, which is the level of mixture below the modal stage. Findings showed that positive mixture is the best predictor, and that development occurs in gradual, progressive manner. The negative mixture configuration inversely correlated with progressive changes.

Snyder and Feldman (1984) acknowledged the validity of Damon's three levels of mixture model (Damon, 1980; Damon & Hart, 1988), but extended new assumptions for this earlier perspective. Working with the development of spatial representation, Snyder and Feldman observed that cognitive development from concrete to preoperational stages does not follow the gradual pattern proposed by Turiel (1969) and Damon and Hart (1988). Rather, development follows a cyclical pattern. This pattern is expressed in a six-phase sequence model that goes from periods of *consolidation* to periods of *elaboration*. In consolidation periods, development is unlikely to occur but in elaboration periods, development shows progressive movements. In addition, associated with the six-phase model, is a bias index that provides direction for development. The reader should understand direction as the movement toward consolidation or elaboration periods. The *bias index* is a group composite variable based on the relative amount of answers placed above and below the modal stage. *Positive bias* is observed by the percentage of use of stages above the modal stage and indicates a movement for periods of elaboration. On the other hand, *negative bias* is observed by the percentage of use of stages below the modal stage and indicates a movement

for periods of consolidation. Finally, Snyder and Feldman argue against the notions proposed by Turiel, Damon, and Hart saying that a "counteracting effect" might occur when considering total mixture only. A group with a high mixture of stages can be considered in progressive development but participants might be going in the direction of consolidation instead of elaboration. In other words, if researchers and educators, who want to intervene in a group to foster reasoning development, design interventions considering total mixture only, they may end up reinforcing periods of consolidation instead of promoting elaboration. This second is the desirable goal because interventions are made to foster development. Therefore, the bias index seems to be a better indicator for the direction of development and should be an a priori decision in the design of moral intervention programmes.

Norcini and Snyder (1983) tested the six-phase model in a programme to foster moral reasoning. As a pre-test, the authors administered the Moral Judgment Interview (MJI; Colby & Kohlberg, 1987) to a group of high school students. Then, the authors categorised students by: (1) level of mixture (low and high); (2) percentage of use of modal stage; and (3) index bias (positive and negative). Next, they randomly assigned students for conditions that followed Turiel's (1966) "plus-one-stage (+1)" design. That is, the experimenter considers participants' modal stages at the pretest, and presents them with arguments at: (a) one stage above (+1 condition); (b) two stages above (+2 condition); and (c) one stage below (−1 condition), and then observes which group shows development. Unlike Turiel, who worked with verbal interactions in his groups, Norcini and Snyder administered written feedback according to each group condition. Finally, they administered a post-test and a follow-up two weeks later. Their findings showed a significant effect for the (+1) condition. The positive bias students showed more advance than negative bias students and there was a significant interaction between the level of mixture and bias. That is, students who showed negative bias and high level of mixture decreased their percentage of use of the modal stage at the delayed post-test. In addition, the authors observed that the percentages of students who advanced in each condition was more revealing for the processes. According to Feldman (1994): "(a) in the (+1) condition, the post-test showed that 62% of positive bias students advanced in modal level as opposed to 50% of negative bias students. The follow-up showed that 71% of positive bias students had advanced versus 19% of negative bias students, (b) in the (−1) condition, negative bias students showed movements of regression at higher proportion than positive bias students at the post-test and follow-up (67% versus 28% and 44% versus 6% consecutively)."

To discuss the models presented in this review, we understand that authors have addressed hard-stage theories as ideal organisations of

knowledge. On the one hand, these theories are templates to explain developmental *changes* on a large scale. On the other hand, these theories fail to explain developmental *transition* between stages that occurs in short periods of time, usually during the acquisition of new knowledge. Therefore, researchers are investigating better models to explain developmental transitions. In this study, we claim that development between stages is an individual and internal process based on characteristics of thinking (i.e. how the person processes the new knowledge). Thus, to observe transition between stages, one should create categories based on cognitive characteristics more than on homogeneity of modal stages or direction of development (e.g. bias index, positive or negative stage-mixture). In addition, the method one uses must reflect the dynamism of transitions. In this vein, Snyder and Feldman (1984) mentioned a "counteracting effect" that might occur if researchers are not aware of the bias index that tells us the direction of development. We want to emphasise, however, that, the bias index suggests that students in the elaboration phase would develop more or faster than students in the consolidation phase. But, the bias index does not tell us how each group develops. The major issue in this debate is how students, who are oriented either consolidation or elaboration, develop from one stage to another. If development between stages is a cyclical process, as authors have suggested (Norcini & Snyder, 1983; Snyder & Feldman, 1984), to explain the issue the authors could have observed the process of knowledge at the moment it happens—not the consequent production of knowledge that comes after transition. Therefore, we need to address again the question of measurement. We understand that to capture transition between stages, one needs a sensitive scale to account for the whole possible range of answers given to a particular problem. The manipulation of the reasoning showed in the scale will represent how one is operating his/her developmental transition. In this way, we have the Moral Judgment Interview (MJI) and the Defining Issues Test (DIT; Rest 1986) as two of the most commonly used measures of moral reasoning development. The question now is: Which measure is the best to reflect the process?

The MJI is a classic measure of production of moral reasoning. The authors claim that the MJI distinguishes stage structure from stage contents. The measure has a clinical interview format and asks respondents to justify their opinions for moral dilemmas. A major criticism for the MJI is that the measure is biased toward finding a high consistency of reasoning in the scoring of moral justifications. Therefore, on the one hand, the use of the MJI may be limited to capturing the dynamic pattern of developmental transition between stages. On the other hand, this scale is appropriate for consistency check—that is, to observe whether or not longitudinal changes happen in the direction that transition patterns indicate.

The DIT is a standardised objective measure of moral reasoning that assesses comprehension of moral judgements associated with different levels and stages. The DIT comprises 6 dilemmas and 12 sentences-issues presented after the dilemmas. Each issue represents a moral-stage scheme. Respondents rate their agreement to each issue, and then select the four most important issues in each dilemma. These scores are hierarchically weighted in a 4-point scale (4 = The Most Important and 1 = The Least Important). Then, adding the scores given to the same stage across the six dilemmas, one obtains stage scores. The total score of the DIT is the sum of all stage scores with a maximum of 60 points. Therefore, the DIT more predictably captures developmental patterns of transition between stages, because the measurement shows us how one is operating with knowledge from different stages. This fact creates a lack of convergent validity for the MJI. That is why researchers find significant differences in modal stage and mixture of stages when comparing measures of production with measures of comprehension of moral reasoning. Consequently, when using measures of comprehension, one should not expect development to occur in a sudden discontinuous fashion of changes, but rather as a gradual transformation.

MORAL EDUCATION

The scientific approach for moral development has supported programmes of moral education with focus on the promotion of cognitive conflict and the use of dilemma discussions (Blatt & Kohlberg, 1975). Reviews of several of those programmes (Enright, Lapsley, Harris, & Shauver, 1983; Lapsley, Enright, & Serlin, 1989; Rest & Narváez, 1994) have offered limited but significant validity for the effectiveness of the approach. On the one hand, programmes have shown gain on measures of comprehension of moral reasoning, particularly the DIT, with moderate but significant effect size in college education. On the other hand, programmes have been shown to be time-consuming, laborious for teachers, and unexciting for students. In addition, short-term interventions (eight discussion sessions) seem to foster development to the same extent as year-round programmes. Currently, to account for these limitations, researchers have developed some action programmes, in which they maintain the central idea with variations of the original method.

Moral cognition is indeed a critical element in moral education, because morality is partially built on "discussions, conflicts, disputes and argumentation" (Turiel, 1997). In other words, moral development has a lot to do with cognitive process and practice of reasoning (Piaget, 1932/1965, 1975). However, we observed that moral education programmes have

emphasised the promotion of cognitive conflict by the use of dilemma discussion. Both dilemma discussion and cognitive conflict are motivational aspects to foster development, but they may not be enough for the accommodation of knowledge if programmes do not provide means for the practice of reasoning. Therefore, we question whether students learn how to exercise their moral reasoning through these programmes. Regarding this issue, as one knows, adolescents usually have Stage 3 and Stage 4 as modal stage and moral education programmes with adolescents often focus on post-conventional levels of argumentation, using hypothetical dilemmas that are extraneous to one's daily life. Therefore, when teachers introduce critical argumentation in a post-conventional manner, they associate moral issues and moral exemplars with elements that may not be accessible for students to manipulate in practice. What are those issues, and who are the exemplars? Exemplar moral characters have been too much emphasised as revolutionaries (Kohlberg, 1984), people who have given up their path of "privileges" and "personal interests" (Colby & Damon, 1992) to develop valuable morality. Therefore, students are left only with their "good boy/girl" conventional orientation as an accessible moral perspective. That is the context they find available for practice. Therefore, in all likelihood, students will accommodate conventional rules rather than know how to build critical moral perspectives (Turiel, 1996) if they are not presented with actual issues that would require their participation. In conclusion, in progressive programmes of moral education, the "good girl/boy conventional morality" is the only perspective related to social reality in one's daily life. This kind of morality is expressed by legalism and unenlightened conformity with social issues (Stage 4 in the Kohlbergian schema). Few programmes, in which teachers reasonably associate post-conventional perspective with actual issues in social life, allow students to incorporate the post-conventional perspective in their daily life (see chapter 2 in Rest & Narváez, 1994).

This study addresses how moral educational programmes would: (1) be tailored by patterns of transition between stages; and (2) provide students with more practice for a post-conventional moral reasoning. To do so, we needed first to detect characteristics of thinking to define transition patterns of development between stages. Second, we needed to design a quasi-experimental programme that could show us how each transition pattern operates during development between stages. In addition, development should be based on real-life socio-moral conflicts. That would facilitate conditions for students to practice the topics presented in class through discussions, conflicts, disputes, and argumentation (Turiel, 1997) inside and outside the classroom environment.

PRELIMINARY STUDY

The purpose of this preliminary study was to detect patterns of transition between stages.

Method

Participants. The sample consisted of 206 14- to 16-year-old males (average age 14.5), Brazilian high school students.

Measure. The Defining Issues Test (DIT) was administered in a Brazilian-Portuguese version (Camino, Luna, & Rique, 1988; Koller et al., 1994). We described the DIT when discussing appropriate measures to detect transition between stages. However, we want to mention that the most frequently used scoring procedure for the DIT is the "P" score. This is a score for one's post-conventional thinking. In other words, this score is the frequency of use of Stages 5 and 6 in the Kohlbergian sequence. However, because we are rather interested in obtaining a large profile of answers, we chose to weigh the frequency of responses falling in each stage of moral development regardless of levels. According to Rest (1986), this is another reliable way to score the DIT.

Procedures to Detect Patterns of Development. We used the percentage of answers in each stage scored by the DIT. This displays a large profile that is composed of how much a student uses each of the six stages.

Results

As shown in Table 2, 13 students placed 50% or more of answers at their modal stage. This configuration was considered by Turiel (1977) as in the typical pattern of stage mixture. These students are characterised by a low mixture of stages or in a period of stabilisation. However, the majority of

TABLE 2
Frequency of Students by Percentage of Answers in the Modal Stage

	Modal Stage					
%	*2*	*3*	*4*	*5*	*6*	*Total No. (%)*
10–19	–	01	01	01	–	03 (1.4)
20–29	–	15	18	20	–	53 (25.7)
30–39	–	17	52	36	–	105 (50.9)
40–49	–	05	18	09	–	32 (15.5)
50–59	–	01	07	05	–	13 (6.3)
60–100	–	–	–	–	–	–
Total	–	39	96	71	–	206 (100)

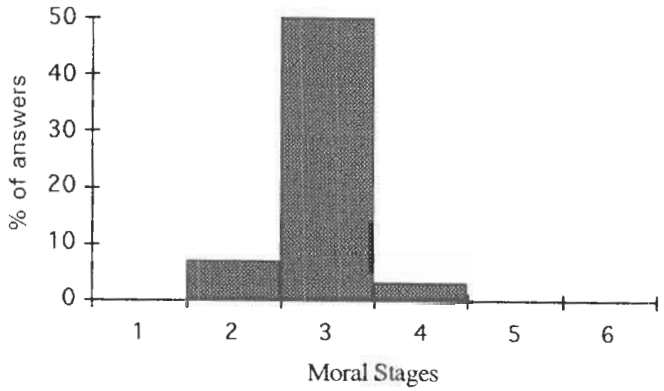
students (50.9% of the sample) placed 30–39% of answers at their modal stage. However, according to Turiel (1977), this shows a higher level of mixture when compared with students who placed 50% of thinking in their modal stage. Finally, the modal stages were distributed at Stages 3, 4, and 5. No student had Stages 2 or 6 as modal stages. This finding is universally characteristic for the age of the population used in this study.

Discussion. Findings are similar to Turiel's idea of stage mixture. Patterns of answers are clearly divided in two major levels of mixtures: (1) *a consistency of moral reasoning*, which is shown when participants score 50% of the thinking or more on a modal stage (see Fig. 1a); and (2) *an inconsistency of moral reasoning*, which is shown when participants score less than 50% of answers on a modal stage (see Fig. 1b). The question we have now is: How do consistent and inconsistent participants perform their transition between stages?

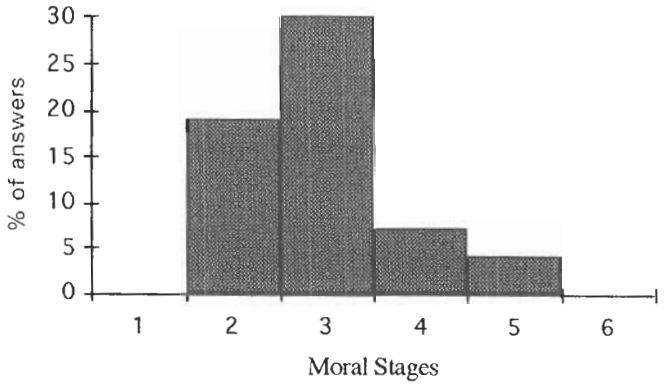
THE QUASI-EXPERIMENTAL STUDY

The purpose of this study was to observe consistency and inconsistency of moral reasoning in a quasi-experimental programme of moral education. We claim that, although consistent and inconsistent participants follow a gradual pattern of developmental transition, different forms of operating within the six-stages model will emerge during the process of transition between stages. To support our claim, we clarify that one needs to understand what consistency and inconsistency of moral reasoning means in developmental terms. Inconsistency is the time in which moral reasoning is sensible for interventions. At this time, the person is actively working in the process of assimilation of new knowledge. On the other hand, as Turiel (1969) has stated, consistency is a time of stabilisation. We prefer to say, accommodation of new knowledge. We do so because, if a consistent use of a single-mind stage reasoning indicates stabilisation, it is the stabilisation of the process of development. This is expected to occur late in life and in higher stages. Thus, particularly during adolescence, the person needs to break their current pattern of thinking before achieving the next stage of reasoning. That may suggest that adolescents need to become inconsistent during transition between stages.

In addition, considering that moral intervention programmes are to foster the natural course of development, it was clear to us that the programme would be beneficial for adolescents who are consistent in their moral thinking only if we provide them with enough motivation and time for a reorganisation of thoughts in the direction of high reasoning. We believe that high reasoning is better, but only when properly understood; otherwise, it may promote identity confusion. Therefore, we concluded that our



a. Consistent Pattern of Reasoning



b. Inconsistent Pattern of Reasoning

FIG. 1. Two profiles of moral development at modal Stage 3.

programme should not be short (e.g. eight sessions only) but a year-round programme to promote the reconstruction of one's knowledge and also to show us details of the process. Finally, the preliminary study showed us that the percentage of students who place 50% or more of moral reasoning in a modal stage is relatively small (6.3% of the sample) to find participants and form groups in the consistency category. Therefore, we decided to consider *consistency* when at least 40% of reasoning is placed on modal stage, and *inconsistency* when no more than 30% of reasoning is placed on modal stage.

Hypotheses

As we have mentioned before, development is unlikely to occur during consistent periods and inconsistency is more sensible a period for intervention. Therefore, we formulated the following hypothesis:

1. Inconsistent experimental students will benefit the most from the intervention programme when compared with consistent experimental students, inconsistent control students, and consistent control students.
2. Consistent experimental students will benefit from the intervention programme by showing: (a) conflict (i.e. decreasing their level of use of modal stage); and (b) reorganisation of their moral reasoning in the direction proposed by the Kohlbergian sequence.

Method

Design. We elaborated a 2 × 2 quasi-experimental design (Levels × Treatment) to observe moral development. Moral reasoning was the dependent variable. Consistency, inconsistency, dilemma discussion, and a lecturing course of moral education were the independent variables. The experimental treatment was the dilemma discussion. The control-like treatment was a lecture course of moral education. The first author of this study was the instructor for the experimental groups. A high school teacher delivered his regular course of moral education for the control groups.

Participants. The sample consisted of 52 males, average age of 14.5 years, Brazilian high school (tenth grade) students.

Measure. We administered the Defining Issues Test (DIT) for pre-test and post-test.

Procedures for Group Formation and Programme Participation. First, we obtained permission from the high school to administer the programme, from the students who volunteered for participation, and from the parents for their children's participation. We gave instructions verbally to the initial group of students who volunteered. Later, we sent written instructions for the parents to consent. The instructions were as follows: (a) this study focuses on their thinking about socio-moral issues; (b) only 52 students would be randomly chosen to participate; (c) only 26 students from the 52 selected would attend a weekly group meeting with the first author of this work; (d) the other 26 students would attend the weekly regular course on moral education; and (e) they all would answer a questionnaire twice during the academic year. The duration of the programme corresponded with the

academic year. Second, we randomly selected 52 tenth-grade high school students to participate in the study. Then, we administered the pre-test in groups, with all students taking the test at the same time. Third, we assigned students for the conditions consistent and inconsistent according to their percentage of answers at modal stage. We then randomly assigned students to the experimental and control conditions. Finally, we created four groups of 13 students each: (1) Consistent Experimental; (2) Inconsistent Experimental; (3) Consistent Control; and (4) Inconsistent Control. In addition, each group was composed of: (a) three students with modal Stage 3; (b) seven students with modal Stage 4; and (d) three students with modal Stage 5. The percentages of answers in modal stage for each participant per group are shown in Table 3.

Experimental Procedures. In the first meeting, the experimenter chose topics for discussion with students in the experimental conditions. Students were asked to think about relevant social issues that would be of their personal interest to discuss in group meetings. The topics they chose were: (a) economic strategies to control inflation and their influence in Brazilians' daily life; (b) social welfare: How fair is the national health insurance in Brazil? (c) political strategies applied to win a presidential race: Are they lying to us? (d) corruption: Should one benefit from corruption? (e) unemployment: How much responsibility do we have as ordinary citizens to address unemployment? (f) people with AIDS: Discrimination vs. acceptance, (g) drug users: Discrimination vs. acceptance, (h) prostitution: Discrimination vs. acceptance, (i) religious rules: Should we follow them? Why? (j) stereotypes: Are surfers irresponsible? Is it acceptable for men to wear earrings? Following this meeting, we developed real-life moral dilemmas regarding each topic. We drew dilemmas around facts that could be found in newspapers and magazine articles, television debates, TV news, etc. The purpose here was to design genuine moral dilemmas using real-life cases that were available in the media, and involving topics related to

TABLE 3
Percentage of Students' Stage Score at Modal Stages 3, 4, and 5, per Group

Stage	*Conditions*			
	Control		*Experimental*	
	Consistent (%)	*Inconsistent (%)*	*Consistent (%)*	*Inconsistent (%)*
3	41	27	40	25
4	44	30	44	30
5	40	27	42	25

Note: Scores with at least 40% at modal stage are consistent. Scores with at most 30% at modal stage are inconsistent.

adolescents' interest. Finally, 20 dilemma discussion sessions were carried out in weekly meetings during an academic year.

Procedures to Apply Statistics. In this study, an experiment-wise alpha level of .05 was used for all statistical tests. To apply statistics, we needed to consider stage scores and total scores. But, as we mentioned before, the DIT measures frequency of use for each stage that adds to a maximum of 60 points. So, we multiplied each stage frequency by the number of the stage. For example, one answered the test with 3—The Least Important—selected choices at Stage 3. Then, one has 3 as the stage frequency of Stage 3. Therefore, we considered $3 \times 3 = 9$. Thus, one scored 9 at Stage 3. In conclusion, by adding the weighted stage frequency, we obtained the total score and percentages for each stage. The modal stage of each participant was the stage with the highest stage score.

Results

First, to examine differences in moral reasoning development, we obtained differential scores for each student by subtracting their post-test minus their pre-test total scores. The differential scores were entered into a 2×2 ANOVA with the variables Consistent Experimental $\times$ Consistent Control $\times$ Inconsistent Experimental $\times$ Inconsistent Control. The ANOVA showed a significant levels $\times$ treatment interaction [$F(1,1) = 6.458$, $P < .014$] (see Table 4 and Fig. 2). These results show that students in the condition Inconsistent Experimental scored higher in the post-test ($M = 14.538$, SD = 14.813). Similarly, students in the condition Consistent Control also scored higher in the post-test ($M = 10.923$, SD = 23.747).

Second, to clarify the results of the significant interaction, we conducted *t*-test matched pairs to compare the DIT means of pre-test and post-test within each group. This analysis showed a significant difference only within the condition Inconsistent Experimental [pre-test $M = 221.08$, SD = 12.41; post-test $M = 235.61$, SD = 16.34, $t(12) = 3.54$, $P < .004$]. This *t*-test result showed that students in the condition Consistent Control did not score

TABLE 4
DIT Analysis of Variance for Levels and Experimental Treatments

Source	*df*	*Ms*	*F*
Levels	1	7.692	.021
Treatment	1	105.308	.289
Levels × Treatment	1	2355.769	6.458**
Explained	3	822.923	2.256
Error	48	364.776	
Total	51	391.725	

**$P < .014$.

TABLE 5
DIT Pre-test and Post-test Means, *t*-test matched pairs comparison

	Pre-test		*Post-test*	
Group	*M*	*(SD)*	*M*	*(SD)*
Experimental				
Consistent	238.31	(19.37)	238.61	(21.55)
Inconsistent	221.08	(12.41)	235.61***	(16.34)
Control				
Consistent	230.08	(19.46)	241.00	(16.36)
Inconsistent	225.15	(15.60)	223.38	(20.52)

***$P < .004$.

significantly higher in the post-test, as indicated by the significant interaction. For the condition Consistent Control, respectively, the means of pre-test and post-test were 230.08 and 241.00 (SDs = 19.46 and 16.36, respectively). (See Table 5.)

Third, to analyse the movement performed by the students within the six-stages model and to apply statistics, we considered only students' modal stage score, because consistency and inconsistency have been defined by the percentage of answers in one's modal stage. Thus, we conducted *t*-test matched pairs within groups between pre-test and post-test means of modal stage. This *t*-test result showed that students in the condition Consistent Experimental (pre-test $M = 26.00$, SD = 2.8; post-test $M = 19.90$, SD = 6.1) significantly decreased their percentage of answers in modal stage

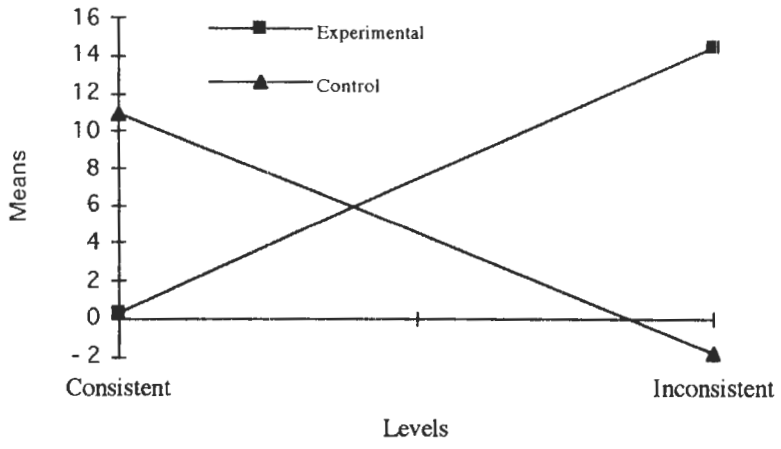


FIG. 2. DIT pre-test and post-test means by levels and treatments.

TABLE 6
DIT Means of Modal Stage, Pre-test and Post-test Scores, *t*-test matched pairs comparison

	Pre-test		*Post-test*	
Group	*M*	*(SD)*	*M*	*(SD)*
Experimental				
Consistent	26.00	(2.8)	19.90***	(6.1)
Inconsistent	17.00	(3.1)	18.80	(2.2)
Control				
Consistent	26.00	(2.8)	21.40	(5.3)
Inconsistent	17.00	(2.2)	20.80	(8.1)

***$P < .001$.

[$t(12) = -3.61$, $P < .001$]. In other words, they decreased their level of consistency in the modal stage. (See Table 6.)

Finally, to visualise the quality of movements performed by the students within the stage model (i.e. observe the direction and organisation of reasoning within groups) we created three categories—forward movement, no movement, and backward movement. Then, to categorise the movement, we observed students' modal stage in the pre-test and in the post-test for each condition. Finally, to demonstrate the extension of the movement, we tabulated how many stages were involved in the movement. For example, if one moved from Stage 3 (pre-test) to Stage 5 (post-test), we considered that one performed a forward movement, because one obtained higher modal stage in the post-test. Then, we counted how many stages one had gone through from the pre-test to the post-test; in this case, one progressively went through two stages (i.e. Stage 3 → Stage 5). Thus, we tabulated one's movement as a (+2) forward movement. We did the same procedure considering backwards movements. We considered "no movement", when a student's modal stage remained the same in both pre-test and post-test. In this way, we obtained configurations of modal stage movements from one measurement time to the next. This analysis showed that students in the condition Inconsistent Experimental performed an organised growth pattern within the sequence (see Fig. 3a). In other words, they performed the expected sequential upwards movement within the stage model. Students in the condition Consistent Experimental performed both (−1) backwards movement and forward developmental movement (see Fig. 3b). The (−1) stage movement is acceptable by the theory. Finally, both control groups performed movements in total disagreement with the theory. In these groups, there were confusing movements over all six stages. (See Figs 4a and 4b.)

-3	-2	-1	Modal Stage	+1	+2	+3
			2	- >	- >	
			3	- >	- >	
			4	- >	- >	
			5	- >		
		< -	6			

a. Condition Inconsistent Experimental

-3	-2	-1	Modal Stage	+1	+2	+3
			2	- >		- >
		< -	3		- >	- >
		< -	4	- >	- >	
		< -	5	- >		
		< -	6			

b. Condition Consistent Experimental

FIG. 3. Movements in the stage model performed by students in the experimental conditions.

Conclusion

Our first hypothesis stated that Inconsistent Experimental students will benefit the most from the intervention programme when compared with Consistent Experimental students, Inconsistent Control students, and Consistent Control students. Therefore, as it was expected to positively differ from the other groups, students in the condition Inconsistent Experimental significantly improved their scores on the DIT post-test (see Table 5 and Fig. 2), and performed a perfectly organised movement within the sequence (see Fig. 3a). These findings support our claim that inconsistency is a period sensitive to intervention because, during this period, students seem to be experiencing natural transition between stages.

			Modal Stage			
-3	-2	-1		+1	+2	+3
			2	- >	- >	
		< -	3	- >	- >	- >
	< -	< -	4	- >		
	< -	< -	5	- >		
	< -	< -	6			

a. Condition Inconsistent Control

			Modal Stage			
-3	-2	-1		+1	+2	+3
			2	- >	- >	- >
	< -	< -	3	- >	- >	
		< -	4	- >		
	< -	< -	5	- >		
< -	< -	< -	6			

b. Condition Consistent Control

FIG. 4. Movements in the stage model performed by students in the control conditions.

Our second hypothesis stated that Consistent Experimental students will benefit from the intervention programme by showing: (1) conflict (i.e. decreasing their level of use of modal stage); and (2) reorganisation of their moral reasoning in the direction proposed by the Kohlbergian sequence. Therefore, as predicted, students in the condition Consistent Experimental did not improve their scores on the DIT post-test but significantly decreased their level of consistency at modal stage (see Table 6). This means that they were becoming inconsistent in their moral reasoning. This finding supports our statement that consistency is a temporary stabilisation in terms of

development. Moreover, we also predicted that students in the consistency category need more time to develop new perspectives. Then, moral education needs to guide these students in the progressive direction (i.e. the sequence of stages). Comparing Figs 3b and 4b clearly shows that Experimental Consistent students presented an organised pattern of direction in the sequence when compared with Control Consistent students.

Finally, the findings showed that our hypotheses were confirmed. However, before we continue to a discussion of our statements, the debate about models of transition between stages remains. In this work, the notion of stage mixture was associated with patterns of reasoning that showed to be good predictors for moral reasoning development. However, one can ask: Are consistency and inconsistency of moral reasoning better predictors than positive and negative indexes (Damon & Hart, 1988; Snyder & Feldman, 1984)? Or: Is development gradually continuous or discontinuous considering consistency and inconsistency of moral reasoning? Although we did not design our study to consider the index bias, our data could feasibly be re-analysed.

THE BIAS INDEX STUDY

As we mentioned earlier, Snyder and Feldman (1984) argue that moral reasoning development follows a cyclical pattern of consolidation and elaboration. In addition, there is a Bias Index that provides positive or negative direction for development. This is a group composite variable observed by the percentage of use of stages above or below the modal stage, and indicates movement toward periods of consolidation or elaboration. Therefore, we decided to redesign and re-analyse our data to include the bias index. The purpose was to observe moral reasoning development considering the bias index (i.e. positive and negative), consistency, inconsistency, and the conditions control and experimental as independent variables.

Method

Design and Procedures. To perform statistical analysis, the following terms were defined: Moral Reasoning development was the dependent variable; Levels of Consistency (consistency and inconsistency); Bias Index (positive bias and negative bias); Conditions (experimental and control) were the independent variables. Differential scores (pre-test minus post-test) were considered for each student as we described before in the original study. Finally, we created a *positive bias group* and a *negative bias group* to observe movements in the modal stage from pre-test to post-test within groups and conditions. For example, we had a group of Stage 4 positive bias

students in the experimental condition, a group of Stage 4 positive bias students in the control condition, etc.

Results

First, we entered the data in a 1 (moral reasoning) × 2 (consistency and inconsistency) × 2 (positive bias and negative bias) × 2 (experimental and control) ANOVA. The results showed a significant interaction between levels × treatments [$F(1,1) = 7.111, P < .011$], (see Table 7). This is the same interaction result shown in the original study. The Bias Index did not significantly relate to moral development.

Second, we conducted Pearson's correlation between Bias Index and Moral Reasoning considering the total sample regardless of levels and treatments. The results showed a negative, weak, and nonsignificant correlation, $r = -.16$ (see Table 8).

Finally, when we analysed the bias index groups we created, we observed that: (a) students with modal Stage 3 were all positively biased; (b) students with modal Stage 5 were all negatively biased; and (c) students with modal Stage 4 were mostly into positive bias category. Moreover, in each group category, students were primarily in steps of elaboration (i.e. Steps 2, 3, and 4; see Snyder & Feldman, 1984). There was a great tendency to be positively biased at pre-test and negatively biased at post-test. Periods of consolidation were not found. Finally, we went to our original study and observed that 37% of our participants ($N = 19$) showed modal stage advance. Then, we considered the pre-test profile of answers in the DIT and analysed the bias index within this group of students who developed. The results showed that

TABLE 7
DIT Analysis of Variance, Moral Judgement by Levels of Consistency, Experimental Treatments, and Bias Index

Source	*df*	*Ms*	*F*
Main Effects	3	224.498	.600
Levels	1	1.258	.003
Treatment	1	11.440	.031
Bias	1	623.399	1.666
Two-way Interactions	3	970.770	2.594*
Levels × Treatment	1	2660.713	7.111**
Levels × Bias	1	90.165	.241
Treatment × Bias	1	188.051	.503
Three-way Interactions	1	201.901	.540
Levels × Treatment × Bias	1	201.901	.540
Explained	7	501.945	1.341
Error	44	374.191	
Total	51	391.725	

*$P < .064$; **$P < .011$.

time. Perhaps a longitudinal study would clarify whether consistency,

TABLE 8
Correlation Coefficients between Bias Index and Moral Judgement Development for the Whole Sample

	Bias Index	*Moral Reasoning*
Bias Index	1.000	−.1630
	($n = 52$)	($n = 52$)
Moral Reasoning	−.1630	1.000
	($n = 52$)	($n = 52$)

63% were positive bias in the pre-test and 31% were negative bias at pre-test.

Conclusion

One should observe that Snyder and Feldman (1984) supported their argument for periods of elaboration and consolidation on research in the area of spatial representation. Although related to cognitive development, the Kohlbergian model for moral development is a much limited model in the definition of stages of reasoning and the time frame one has to develop in the model. Moreover, the Kohlbergian sequence has empirical support, primarily for the use of Stages 2 through 5, that further reduces the scope of reasoning. Therefore, we argue that the bias index may be associated with the location (i.e. modal stage) that one is in the sequence of stages rather than a dispositional indicator for development. In terms of the Kohlbergian sequence, periods of negative bias towards consolidation may be observable only when a person is at modal Stage 3 or Stage 4, just because the model provides room for that. How would a negative bias configuration for consolidation at Stage 2 be represented? This would be clearly observable if a person is at modal Stage 5. Nevertheless, we observed that, considering percentages, positive bias students were more likely to show development than negative bias students.

Moreover, this discussion also called our attention for interpretation problems when analysing movements in the model. There are some anomalies found cross-culturally in the sequence of stages. For example, Brazilian adolescents have shown a quite distinctive way to reach Stage 5 during their college years. They make much more use of the Stage 3 on the way to Stage 5 than their American counterparts (Biaggio, 1988; Camino et al., 1988). That is, either Brazilian adolescents remain at Stage 3 longer than American adolescents, skip Stage 4, or move very fast through Stage 4; or, we believe that when reasoning of Stage 5 is difficult to achieve, Brazilian adolescents go backwards to Stage 3 instead of staying with modal Stage 4. That shows a culturally distinctive use of Stage 3 and Stage 4 notions on the way to Stage 5. Therefore, the frequency of answers above or below modal

stage (i.e. bias index) cannot predict that Brazilian adolescents are moving forward to Stage 5 while increasing their frequency on Stage 3. Thus, if Brazilian adolescents are pictured at that moment, they will erroneously be classified as negative bias adolescents toward a period of consolidation most probably at modal Stage 3, whereas their American counterparts in late adolescence and young adulthood will be at Stage 4 or Stage 5. In other words, it will be difficult for researchers to classify these adolescents as positive bias in a period of elaboration for consolidation at Stage 5. Finally, we argue that the fact that Stage 4 is not prevalent in Brazilian adolescents makes the transitional pattern for Stage 5 different, but still follows the cognitive developmental principles.

DISCUSSION

This work introduces consistency and inconsistency of moral reasoning as different patterns of thinking during transition between stages of moral development. Inconsistency of reasoning is the process of transition. At this moment, the organism is sensitive to receiving intervention and fostering the achievement of higher structures. Consistency of reasoning is a characteristic of the period of stability (Turiel, 1969). During this period, the motivation for achievement of new structures is unlikely to occur for a certain period of time. We theorise that the amount of time adolescents take in stable periods has to do with the opportunities they have to test their thoughts in real-life situations. Thus, development is characterised by the breaking of the one's stability. The dilemma discussion method has shown to be effective for breaking the stability of reasoning, organising the direction of thoughts and, for the inconsistent category, accelerating the process of achievement of the higher structures. Therefore, educational interventions in a cognitive developmental tradition affect both kinds of reasoning; however, this occurs in different ways, as we shall explain.

On the one hand, our findings are in accordance with Turiel's (1969) assumptions of stage mixture. On the other hand, we claim that intervention programmes in the cognitive developmental tradition would incorporate the notion that the internal process of transition for higher structures may require external guidance for the organisation of thoughts. In addition, the quality and kind of guidance will be different for consistent and inconsistent individuals. Considering that an inconsistency of moral reasoning reflects the moment of transition, participation in moral discussions offers a solid ground for the ones who are already seeking validation for their thoughts. We argue that inconsistent students benefited more from the discussions than from the cognitive conflict created. It is difficult to create significant conflicts when one has a high level of stage mixture. We classify students by modal stage, but sometimes it shows just a one or two point difference; thus,

we do not know exactly which stage might be the meaningful target for the conflict. Nevertheless, it seems to us that an active participation in discussions gave inconsistent students confidence about the new kind of reasoning they were struggling to validate. That is why the Inconsistent Experimental group showed a perfect growth. They were guided and encouraged to use their new perspective in the classroom (and perhaps outside the classroom) because the topics were largely explored through the local media. On the other hand, considering that consistency is a period of stability, cognitive conflict is effective for fostering development but adolescents need time to restructure their thinking. We argue that cognitive conflict promotes instability, but does not necessarily organise thoughts in the direction of the higher structure. In this way, active participation in structured discussions gave students in the consistent category direction for their thoughts earlier, in order to promote the accommodation of the new reasoning. In sum, for both consistent and inconsistent adolescents, we argue that the cognitive developmental approach could incorporate the assumptions that, although instruction cannot be explicit to promote an internal motivation for solving conflicts, instructors can overtly make associations between high moral reasoning with principles and social consequences. That happened in this study when discussing real-life situations. During the discussion, we observed that students compared the social consequences of their arguments when they had to put them into practice. Therefore, it becomes even more difficult to argue against high principles of justice when one can explicitly relate reasoning and the moral consequences. Instructors thus turn abstract moral principles into concrete objects by providing contextual socio-moral issues that will allow individuals to manipulate the object in their contexts.

Finally, this work was not a replication of Snyder and Feldman's (1984) study. However, our data allowed us to make comparisons. We considered it was important due to the similarity of ideas (i.e. elaboration and consolidation vs. consistency and inconsistency). However, distinctions between the models of Damon and Hart (1988), Snyder and Feldman (1984), and Turiel (1969) are not issues of terminology but the underlying assumptions they make for development. Our analyses of the bias index did not correlate with development. Our comparison with the consistent and inconsistent categories did not show periods of consolidation; in the same way that it is difficult for us to argue in terms of stabilisation. One should remember that only very few adolescents showed 50% of reasoning in modal stage. What we obtained was a constant period of elaboration or transition. Therefore, transition is expressed by different levels of mixture. This is what brings us close to Turiel's (1969) and Damon and Hart's (1988) notion of gradual transformations during development. On the other hand, no one has examined closely moral reasoning development during short periods of

time. Perhaps a longitudinal study would clarify whether consistency, inconsistency, consolidation, and elaboration are cycles of development. Nevertheless, still in this regard, we argue that it is limited and misleading to predict development only by the percentage of use of stages above or below the modal stage (Damon & Hart, 1988; Snyder & Feldman, 1984), without consideration of the dynamism of the whole configuration of stage mixture and movements. There are confound variables, such as cultural patterns, involved in the process of transition between stages.

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