

PUBERTY AND PERSON-ENVIRONMENT FIT
IN THE CLASSROOM

Christy L. Miller

The University of Michigan

In P. Lee (Chair), Decision-making fit at early adolescence: A developmental perspective. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, April 1986.

This research was made possible by grants from the National Institute of Mental Health (MH31724 to Jacquelynne S. Eccles), the National Institute of Child Health and Human Development (HD17296 to Jacquelynne S. Eccles), and the National Science Foundation (BNS-8510504 to Jacquelynne S. Eccles and Allan Wigfield).

Address correspondence to the author at: Achievement Research Laboratory, 5207 Institute for Social Research, The University of Michigan, Ann Arbor, Mi. 48106.

Abstract

Actual and ideal classroom decision-making opportunities were examined for children at different levels and timings of pubertal development. Parent reports of pubertal development were used to classify 824 girls and 837 boys in 4th through 6th grade. Beliefs about decision-making were assessed in the fall and spring of the school year. Results indicate that, by the spring of the school year, girls who are early for their age are more likely than other girls to believe that actual amount of decision-making opportunity is not the same as ideal. This is due to increasing negative perceptions of actual opportunities over the year. Results for boy's timing, and for level of puberty for both sexes, were not significant. Person-environment fit seems to be poorer in late elementary school for those girls who develop ahead of most of their peers.

The development of autonomy, and how this is manifest in behavior, is a prominent theme in the literature on adolescent development. According to Erikson (1968), the major crisis needing resolution during the adolescent period is the establishment of a unique identity. During this time the youngster begins to discover who she is apart from her parents, and to learn how to assert that uniqueness in a variety of situations. Havighurst (1972) includes among the tasks of adolescence several which focus on the acquisition of a new identity and the gradual achievement of independence. Hill (1980) discusses the move toward self-reliance and behavioral autonomy over the adolescent years, and points to data suggesting that adolescent adjustment occurs more easily, and with more favorable outcomes, where opportunities for the adolescent to exercise independence are provided. When the environment fails to accommodate to the increased need to discover and assert a unique identity, a troublesome adolescent period may result (Alexander, 1973). Lerner (1985) claims that the "adolescent's burgeoning competency to behaviorally shape and/or select their contexts is the most flexible means by which they may act as producers of their own development" (p.358).

Increased desire for autonomy and independence is likely to be reflected in desire to take part in decisions which affect the self. In the classroom, Lee, Statuto and Kedar-Voivodas (1983) documented an increased desire for student input into classroom decisions with increasing grade

level. They compared 2nd, 4th, and 6th graders, and found that 6th graders desired more prerogatives than children in lower grades. They attribute this to an increasing sense of autonomy along with a higher level of familiarity with the classroom in the 6th grade group. Changing needs of the adolescent may affect perceptions of the actual environment as well as the ideal. Litovsky and Dusek (1985) state that independence strivings in older adolescents may lead to perceptions of parents as less accepting and more controlling. Older children in their sample of 7th to 9th graders did indeed perceive parents as less accepting, although not more controlling, than the younger children.

Many changes occur during early adolescence that serve as cues to the child, and others in the child's environment, that he is approaching adulthood. Such changes, or cues, may be the initial impetus for moves toward independence in the child. Physical changes of puberty are sometimes early, and always salient changes (Brooks-Gunn and Petersen, 1984) signalling that the child is growing up. Lerner (1985) stresses the role of physical and psychosexual changes in the taking on of active, independent roles. Physical changes may cause the child's perception of self to change in ways that lead to increased desire for independence, autonomy, and opportunities to establish a unique identity.

This study aims to discover whether pubertal development is associated with desire for decision-making prerogatives, as well as with perceptions of actual

decision-making opportunities. Pubertal development can be examined in a couple of ways: 1) as a variable that increases over a period of time, with an individual's own level of puberty being the salient dimension; 2) as a variable that has meaning only in relation to a reference group, so that level of pubertal development in comparison to others of the same class, grade, or age level becomes important. It is possible that the more developed the child, the more he will view himself as "older" and more capable of taking a role in decision-making, thereby increasing the desire for autonomy and input into decisions concerning himself. However, children who develop earlier than their peers may be particularly aware of the physical changes, making these changes stronger signs of growing up. Conceptualizing puberty in terms of level and timing both occur in the literature on pubertal development, and both will be examined in this study.

Research indicates that physical development at puberty is an important component of development toward independence. This is indicated by studies that examine desire for autonomy directly, as well as those that look at behaviors related to assertiveness and independence. Conflicting findings, however, make it difficult to predict exactly what its effects are. Peskin (1967) found early maturing males to be more submissive around the time of puberty, while Rutter (1980) found them to be more assertive. Steinberg and Hill (1978) demonstrated

increasing assertiveness toward mothers, but not fathers, with increased development of boys. Jones and Bayley (1950) documented more behavior problems in boys who are late maturers. Data from Duncan, Ritter, Dornbusch, Gross and Carlsmith (1985), however, indicate higher levels of self- and school-reported deviant behavior in early maturing boys.

Simmons, Blyth and McKinney (1983) found early maturing girls in the 6th grade to demonstrate more behavior problems, and menstruating girls to exhibit more independence. Peskin (1973) said early girls showed more unrest; Magnusson, Stattin and Allen (1985) found more deviant behavior, including ignoring of parental rules, in this group.

Hill, Holmbeck, Marlow, Green and Lynch (1985) compared pre- and post-menarcheal girls at less than 6, less than 12, and more than 12 months post menarche on a number of family attitude and participation variables. Girls who had begun menstruating very early claimed that their parents had less influence on them, that they participated less in family activities, and felt less accepted by their parents. There were also transitory upsets in family relations right around the time of menarche.

"Mothers are perceived by immediately postmenarcheal daughters as less accepting than are mothers of premenarcheal daughters, and the family is seen as more controlling. In the first few months after menarche, there is less equalitarian treatment of the daughter and not more - at least as the daughter perceives it. Daughters also more frequently report being less influenced by their parents and seeking less guidance from them a few months after menarche than before." (p. 315)

These findings suggest that with physical changes associated with puberty, there is an increase in need and desire for personal responsibility and decision-making, and also a shift in perceptions of actual opportunities afforded by the environment.

The present study extends research on early adolescents' perceptions of opportunities in the environment and desires for decision-making opportunities by examining perceptions of and desire for autonomy and decision-making in the classroom. Perceptions of both actual and ideal environments, and discrepancy between them, are included. It seeks to answer the question of whether increased desire for independence, or assertiveness (as indicated by desire for decision-making opportunities) is associated with pubertal development in a way that changes the goodness of fit between personal desires and opportunities in the classroom environment. In addition, it compares conceptualizations of puberty to see if level of puberty or timing of puberty has more of an influence on goodness of classroom fit. Further, timing with relation to all children of the same age and timing with respect to immediate classmates are examined separately in order to compare the importance of a smaller, more immediate reference group with that of a larger cohort. The following hypotheses are tested:

- 1) Level of pubertal development is positively related to desire for prerogatives, with more mature children

- desiring more decision-making opportunities.
- 2) Level of pubertal development is negatively related to perceptions of the actual environment, with more mature children perceiving fewer opportunities for decision making involvement.
 - 3) Level of pubertal development is positively related to occurrence of discrepancies between the actual and ideal environment, with physically mature children more often stating that the environment does not provide what it should provide.
 - 4) Timing of pubertal development is related to desire for prerogatives, with children who are mature for their age desiring more decision-making opportunities.
 - 5) Timing of pubertal development is related to perceptions of the actual environment, with children who are mature for their age perceiving fewer opportunities for decision making involvement.
 - 6) Timing of pubertal development is related to occurrence of discrepancies between the actual and ideal environment, with children who are mature for their age more often finding actual and ideal environments to be different.

Methods

Sample. The children included in this study are a subset of 3246 4th-6th graders who participated in a longitudinal study on the transition to junior high school. Many parents of children in this study completed a questionnaire that

included items asking them to rate the pubertal development of their child in terms of physical changes. These children constitute the sample for the present study. The total number of girls for whom we had puberty data was 901; the total number of boys was 914.

Testing Regimen. The junior high school transition study involved four waves of data collection, two in the 6th grade year (fall and spring) and two in the 7th grade year (fall and spring). The present study reports analyses of data from wave 1 (fall of 6th grade) and wave 2 (spring of 6th grade), and of the change in these data from wave 1 to wave 2. Only those children who remained in the same class and had the same teacher at both waves were included, resulting in a final, longitudinal sample of 824 girls and 837 boys.

Definition of Pubertal Status. Parent's were asked to rate number of inches grown within the last year, current existence (yes or no) of oily hair, skin blemishes, and pubic hair. Parents of girls were also asked to rate (yes or no) the existence of breast buds or breast development beyond the breast bud stage and the occurrence of menarche; parents of boys rated increases in muscle strength (yes or no) within the last 6 months or the last year. For each of these indicators, parents were to check all which currently applied to their child.

Children were assigned scores on each pubertal indicator in the following manner: for oily hair, skin blemishes, and pubic hair, a "no" was assigned 1 and a

"yes", 2. Three levels of breast and muscle development were created, with a 1 representing no development, a 2 representing breast buds or increased muscle strength within the last six months, and a 3 representing breast development beyond the breast bud stage or muscle development within the last year. Non-menstruating girls were assigned a 1 for this variable, and menstruating girls a 3; since menstruation is a late sign of puberty this index was given extra weight. The distribution of inches grown within the last year was examined separately for boys and girls, and categories of a little (1), medium (2), and a lot (3) of growth were assigned.

Once scores on the individual items had been assigned, scores on the 6 indices for girls and the 5 indices for boys were summed, so that each child received a "pubertal score". Scores on this variable were then collapsed into 3 categories separately by sex, so that each child was assigned a pubertal "level" (a little pubertal development, medium pubertal development, a lot of pubertal development)¹.

¹Since this did not take into account which specific indicators were contributing to an individual's score or level, the same process was repeated for various combination of indicators (breast or muscle development only, breast/muscle development and growth in height, breast/muscle development and pubic hair). Alternative composites for pubertal level correlated above .67 for both boys and girls; in addition, early analyses generated for these different conceptualizations of pubertal development produced similar results. Thus, the results reported in this study are based on the total score composites.

Definition of Pubertal Timing.

Timing with respect to age: Pubertal level based on the complete set of indicators was crossed with age in years, to get level of development for age. Cells that represented 20% or less of the children for that age group were classified as late if they were less developed than most of the children their age, and early if more developed. Cell sizes greater than 20% were classified as on time. With this sample, this resulted in "late" and "early" groups that were two standard deviations below or above the mean, respectively.

Timing with respect to classroom: Standardized pubertal scores using classroom as the stratum were computed. Children one or more standard deviations from the mean were classified as more developed than most or less developed than most.

Tables 1 and 2 provide a summary of the number of subjects in each of the pubertal level and pubertal timing groups.

Measures of Actual and Ideal Classroom Environment. Five yoked pairs of items assessing what decision making opportunities exist in the classroom, and what opportunities the children think should exist, taken from Lee et. al (1983), and adapted for use in math classrooms, were used. The following is an example:

Do you help to decide what math you work on during class? (NO, YES)

Should you have a say about this? (NO, YES)

Yoked pairs existed for decisions regarding where to sit, amount of math homework math classwork, rules for the classroom, and what to do next after finishing an assignment.

Answers on each of the five yoked pairs of items were tabulated, and composites created that indicated whether a child was discrepant (said "can but shouldn't" or "can't but should" be able to make a certain decision) or congruent ("can and should" or "can't and shouldn't") for each decision-making instance. The discrepant and congruent responses from the 5 individual items were summed to create a "sum of discrepant/congruent responses" item. In addition, each child received a sum of responses on the actual and a sum of ideal constraints/prerogatives. These scores ranged from 5 (responses were "no" to all actual or ideal decision-making opportunities) to 10 (responses were "yes" to all). Congruence or discrepance on each of the five yoked pairs, sum of congruent and discrepant responses from all five pairs, sum of perceptions of actual environment, and sum of beliefs about the ideal environment were used as dependent variables in the analyses. Four level composite variables for each of the individual yoked pairs that indicated exact categories of response ("can't and shouldn't", "can't and should", "can and should", "can and shouldn't") were used in post hoc analyses to see which categories of discrepance or congruence pertained to each result.

One-way analyses of variance were used to examine the effects of pubertal level and timing on the classroom environment measures at both waves 1 and 2. In addition, wave 2 responses were regressed on wave 1 responses, and the residuals from these analyses were used as dependent variables in one-way analyses of variance, again using pubertal level and timing as the independent variables. This allowed examination of differences in mean change scores from wave 1 to wave 2. Where the differences in discrepance or congruence (or change in these) reached significance, two-way cross classifications were used to examine frequencies with which children of different pubertal levels or timings responded with specific kinds of congruence or discrepance. The above analyses were performed for all children who had the same class and teacher at both waves; they were also done within different types of classrooms (4th grade/ 5th grade split classrooms, 5th grade classrooms, 5th grade/ 6th grade split classrooms, and 6th grade classrooms) separately in order to see if different variance in pubertal status between classrooms had an impact on the results.

Results

Puberty and Classroom Fit at Wave 1.

One-way analyses of variance show almost no significant differences between children of different levels or timings of pubertal status on the classroom fit items at wave 1. The only result that reaches significance indicates that

early maturing girls for their age are more congruent concerning what to do next than on time or late maturing girls ($F(2,806)=3.48, p=.03$).

Puberty and Classroom Fit at Wave 2.

At wave 2 there are several significant effects for pubertal timing and classroom fit (see Tables 3 and 4). All but one of the significant results occurs for girls. When timing with respect to others in one's classroom is used, girls who are less developed are more often congruent than average or more developed girls regarding classwork decisions ($F(2,806)=3.88, p=.02$). Two-way comparisons of the classroom decision-making item indicate that the greater congruence is mostly due to responses of "we can't and we shouldn't", which are more frequent in less developed than average or more developed girls. Endorsement of "we can and we should" by less developed girls is higher than average girls, but not higher than more developed girls. Table 5 documents the frequency of specific responses at each wave for these girls.

The pattern for timing with respect to age for girls is that of early girls showing more discrepancy. They are significantly more discrepant than the on time or late girls regarding classwork ($F(2,805)=3.38, p=.03$), and the sum of the 2 level discrepancy items ($F(2,782)=3.83, p=.02$) (see Tables 3 and 4, and Figures 1 and 2). Two-way comparisons reveal that the higher level of discrepancy for early girls is due to more "can't but should" responses (Figure 3),

since they actually show fewer "can but shouldn't" responses (Figure 4) than the other groups (see Table 6 for frequencies of specific responses). In addition, early girls have more negative perceptions of the actual environment ($F(2,792)=3.83, p=.03$) (see Figure 6). Sheffe post hoc comparisons confirm the conclusion that while on time girls are more positive about the actual environment than early girls, they are significantly more negative than late maturing girls.

The only result that reaches significance for males is that boys less developed with respect to their classmates see the actual environment more negatively than boys who are average ($F(2,807)=3.31, p=.04$) (see Tables 3 and 4).

There are no significant effects of pubertal level on any of the wave 2 congruence variables.

Change in Classroom Fit from Wave 1 to Wave 2.

Wave 2 fit items were regressed on wave 1 fit items. One-way analyses of variance were done on the residuals of these regressions in order to detect what effect pubertal status and timing had on change in the dependent variables from fall to spring of the school year. Again, effects are most prominent for pubertal timing of girls (see Tables 7 and 8 for summary of results).

Girls.

Timing with respect to class: Less developed girls became more congruent and average girls became more discrepant over the course of the year with regard to

classwork decisions ($F(2,796)=3.47, p=.03$), and the sum of the 5 individual fit items ($F(2,764)=3.84, p=.02$). Frequencies of response at wave 1 and wave 2 (Table 5) suggest that this result is primarily due to the fact that less developed girls increase in frequency of "can and should" responses, and average girls decrease frequency of "can't and shouldn't" while increasingly endorsing "can't but should". More developed girls are higher than average girls at wave 1 in the number of "can't but should" responses, and the two groups become more similar at wave 2; more developed girls also decrease more than average girls in tendency to endorse "can but shouldn't".

Timing with respect to age: Early girls become more discrepant than late and on time girls regarding what to do next ($F(2,790)=3.28, p=.04$). A trend in the same direction occurs for classwork decisions ($F(2,795)=2.61, p=.07$). (While this result is only marginally significant, it is reported because it supports the single wave analyses that indicate no difference between the groups at wave 1, but early girls more discrepant at wave 2.) For decisions about what to do next, frequency of both "can't but should" and "can but shouldn't" increase among early girls; for classwork decision-making, frequency of "can't but should" rises while "can but shouldn't" stays the same. In addition, "can't and shouldn't" responses drop off and "can and should" drops off or stays the same in this group from wave 1 to wave 2 (see Table 6). Two wave analysis of the

sum of the 5 yoked fit items supports the individual item findings that early girls become more discrepant ($F(2,764)=4.77$, $p=.009$) (see Figure 5). In addition, there is a trend for both early and on time girls to become more negative over the course of the year than late girls in their perception of the actual environment ($F(2,784)=2.70$, $p=.07$) (see Figure 7). This, along with the significant result for this item at wave 2 alone, indicates that the changes in discrepancy scores from wave 1 to wave 2 results from more negative perceptions of the actual environment rather than changes in ideal standards.

Boys.

Timing with respect to class: From wave 1 to wave 2 average boys become more positive in their perception of the actual environment, and less developed boys become more negative ($F(2,788)=3.01$, $p=.05$).

Grade Level Effects.

The above analyses were repeated separately for children in four types of classrooms: 4th/5th grade split classrooms, 5th grade classrooms, 5th/6th grade split classrooms, and 6th grade classrooms. This was done because variance of pubertal level and timing differed between type of classrooms. Especially for boys, who mature later than girls, effects of pubertal timing or level might appear only after that variance in development had begun to increase. Thus, effects might occur in sixth grade classrooms only. Alternatively, it can be argued that pubertal effects on

desire for autonomy will be stronger in environments where the pubertal development really stands out - e.g. in lower grade, homogeneous classrooms. In order to see if effects occurred in certain types of classrooms and not others, or if these effects differed from those found in the group as a whole, the classroom type analyses were performed. These results mimic the results reported above for all classroom types combined in those cases where there were enough subjects in each group to complete the analyses. Some of the timing analyses were not possible in the 4th/5th split and 5th grade classrooms, since the number of children in these classrooms was rather low, and in some cases there were no children who represented more developed or early maturers in these classes.

Discussion

The present findings lend support to the hypotheses that timing of pubertal development is related to views of the classroom environment for girls. Early maturing girls (classified by age) look more discrepant than on time or late girls toward the end of the school year, and this results from an increase in discrepancy over the course of that year. Results for timing of development compared to classmates indicate the same type of pattern from a different direction. Less developed girls in these classrooms are more congruent than average and more developed girls, suggesting that their needs are more likely to be met by the classroom environment. Contrary to what

one might expect given initial analyses indicating that the early girls become more discrepant, the change analyses suggested that average girls for their classroom become the most discrepant. Two-way comparisons show that average and more developed girls in the classroom are similar in endorsement of "can't but should" while more developed girls are less likely than average girls to say they can do something but shouldn't be able to. Less developed girls, on the other hand, are more likely than other girls to say they "can't and shouldn't" be able to do something, and their endorsement of "can and should" increases most over the year. The age-timing results also seem to be due mostly to increases in "can't but should" by early girls. Thus, both sets of results indicate a high level of endorsement of "I can't but I should be able to take part in this decision-making" by the early (or more developed) girls, and a better person-classroom fit for less developed girls.

One explanation for the different overall results by type of timing is that girls classified as early for their age represent a more extreme group than girls classified as more developed in their classrooms. The former girls are early with respect to all peers of the same age group, and represent a group that is two, rather than one, standard deviations from the mean on physical development. Therefore, it may be that the classroom fits least well for those girls who are generally very early in development.

There are no significant differences at wave one;

differences in decision-making congruence emerge over the course of the year. One reason for this may be that pubertal change has a lagged effect. Parent ratings were made between late fall and mid-winter of the school year; pubertal status reported at this time of the year may show its strongest effects following that report, since the report may reflect changes that have just begun to occur. Another reason for the lack of findings at wave one may be that students are less familiar with the environment in the fall, and that dissatisfaction with the environment will only emerge after the students have had more of a chance to assess what happens and what does not.

None of the analyses indicate a difference regarding choices of where to sit or making of classroom rules. Discrepancies occurred on items regarding choice of things to do - mainly classwork and what to do next (although there is a non-significant trend in the expected direction for homework as well). Lee et al. (1983) distinguish between governance, custodial, and instructional decisions. Physical development as a cue of growing up may make one more concerned about certain types of decisions, particularly those about work and activity in the classroom (similar to what they call instructional decisions) more than those of rule-making or classroom structure (custodial or governance decisions). This difference was not predicted in advance, but indicates that growing desire for autonomy may be reflected in some types of decision-making and not

others.

Results do not support the hypotheses that level or timing of development lead to differences in perceptions of the ideal environment. Perceptions of the actual environment at wave 2 were lower for early maturing girls than on time or late, and lower for on time girls than for late, suggesting that increased discrepancy from wave 1 to wave 2 is due primarily to shifting beliefs about the actual, rather than the ideal environment.

The results obtained are limited to pubertal timing. No significant pattern of results emerges for level of pubertal development. This suggests that the salience of development with respect to peers is more important as an indicator of growth, and what privileges might accompany that growth, than development alone.

Results are also stronger and more numerous for girls than they are for boys. It is possible that the physical changes experienced by girls are more defined and unambiguous, and therefore more salient "growing up" cues. Less tangible or visible physical changes of the male may make these changes less important in relation to other indicators of adolescence. An alternative explanation, however, is that this group of children is too young to detect the effects of pubertal development in boys. Boys develop approximately two years later than girls, thus, effects of pubertal development on desire for autonomy and input in the classroom may not be seen for another year or

two. The effects found for boys also evidence a different pattern: less developed boys are more negative at wave 2, and become more negative over the course of the year than average boys. More developed boys are not significantly different from less developed or average boys, tending to fall between these groups. It may be that less pubertally advanced boys actually receive fewer privileges than more developed or on time boys, and therefore they are more likely to say they do not have certain prerogatives in the classroom. Evidence that early maturing boys are perceived more positively by adults and by peers (Rutter, 1980; Sorell and Nowak, 1981) and that late maturing maturing males and early maturing females receive more negative evaluations (Tobin-Richards, Boxer, and Petersen, 1983) suggests that this might be so.

These data are preliminary but suggestive. In late elementary school the classroom environment may provide greater fit for girls who develop on time or late with respect to their peers. Overall, these girls are less likely than early girls to say they can't take part in certain decisions they feel they have a right to take part in. Pubertal development seems to affect perceptions of the classroom by girls who see that they are growing up and deserving of autonomy in a way that they believe certain "unjustified" constraints exist. Over the school year, perceptions of the actual and ideal environment become increasingly discrepant, seemingly due to increased

negativity about the actual opportunities in the environment.

One important factor not included in the analyses presented here is the degree of actual control in the classroom. It may be that the effects of pubertal development on perceptions of actual and ideal environment are stronger in those cases where there is little chance for input or autonomy. Where a teacher does allow decision-making input to occur, a growing child's needs for taking on responsibility may be met, and therefore, discrepancies of this sort not expressed. Another factor of potential importance is the level of autonomy and participation in decision-making granted in the child's home. The autonomy experienced at home in response to physical or other changes of adolescence is likely to influence expectations for participation in the classroom. Future research should explore some of these avenues in order to clarify relations between pubertal development and changes in beliefs about, and expectations from, the classroom.

References

- Alexander, J.F. (1973). Defensive and supportive communication in normal and deviant families. Journal of Consulting and Clinical Psychology, 40, 223-231.
- Brooks-Gunn, J. & Petersen, A.C. (1984). Problems in studying and defining pubertal events. Journal of Youth and Adolescence, 13, 315-327.
- Duncan, P.D., Ritter, P.L., Dornbusch, S.M., Gross, R.T., & Carlsmith, J.M. (1985). The effects of pubertal timing on body image, school behavior, and deviance. Journal of Youth and Adolescence, 14(3), 227-235.
- Erikson, E.H. (1968). Identity: Youth and crisis. New York: Norton.
- Havighurst, R.J. (1972). Developmental tasks and education. (3rd ed.) New York: David McKay.
- Hill, J.P. (1980). The family. In Johnson, M. (Ed.) Toward adolescence: The middle school years. The Seventy-Ninth Yearbook of the National Society for the Study of Education, University of Chicago Press, Chicago, pp. 32-55.
- Hill, J.P., Holmbeck, G.N., Marlow, L., Green, T.M., & Lynch, M.E. (1985). Menarcheal status and parent-child relations in families of seventh-grade girls. Journal of Youth and Adolescence, 14(4), 301-316.
- Jones, M. & Bayley, N. (1950). Physical maturing among boys as related to behavior. J. Educ. Psychol., 41, 129+.
- Lee P.C., Statuto, C.S. & Kedar-Voivodas (1983). Elementary school children's perceptions of their actual and ideal school experience: A developmental study. Journal of Educational Psychology, 75(6), 839-847.
- Lerner, R M. (1985). Adolescent maturational changes and psychosocial development: A dynamic interactional perspective. Journal of Youth and Adolescence, 14(4), 355-372.
- Litovsky, V.G. & Dusek, J.B. (1985). Perceptions of child rearing and self-concept development during the early adolescent years. Journal of Youth and Adolescence, 14(5), 373-387.

- Magnusson, D., Stattin, H., & Allen, V.L. (1985). Biological maturation and social development: A longitudinal study of some adjustment processes from mid-adolescence to adulthood. Journal of Youth and Adolescence, 14(4), 267-283.
- Peskin, H. (1973). Influence of the developmental schedule of puberty on learning and ego functioning. Journal of Youth and Adolescence, 2(4), 273-290.
- Peskin, H. (1967). Pubertal onset and functioning. Journal of Abnormal Psychology, 75, 1-15.
- Rutter, M. (1980). Changing youth in a changing society: Patterns of adolescent development and disorder, Mass.: Harvard University Press.
- Simmons, R.G., Blyth, D.A., & McKinney, K.L. (1983). The social and psychological effects of puberty on white females. In J. Brooks-Gunn and A.C. Petersen (Eds.) Girls at puberty: Biological and psychosocial perspectives, New York: Plenum Press, 229-272.
- Sorell, G.T., & Nowak, C.A. (1981). The role of physical attractiveness as a contributor to individual development. In Lerner, R.M. and Busch-Rossnagel, N.A. (eds.) Individuals as producers of their development: A life-span perspective, New York, Academic Press.
- Steinberg, L.D. & Hill, J.P. (1978). Patterns of family interaction as a function of age, the onset of puberty, and formal thinking. Developmental Psychology, 14, 683-684.
- Tobin-Richards, M.H., Boxer, A.M., & Petersen, A.C. (1983). The psychological significance of pubertal change: Sex differences in perceptions of self during early adolescence. In Brooks-Gunn, J., and Petersen, A.C. (eds.), Girls at puberty: Biological and psychosocial perspectives, New York: Plenum Press, 127-154.

TABLE 1.

Number of Children at Each Level of Puberty

Sex	Total	Little	Medium	A Lot
Females	824	224 (27.2%)	373 (45.3%)	227 (27.5%)
Males	837	302 (36.1%)	407 (48.6%)	128 (15.3%)

TABLE 2.

Number of Children at Each Timing of Puberty

Sex	Total	Late (Less Developed)	On Time (Average)	Early (More Developed)
Timing by Age				
Females	818	94 (11.5%)	666 (81.4%)	58 (7.1%)
Males	827	13 (1.6%)	705 (85.2%)	109 (13.2%)
Timing by Class				
Females	819	145 (17.7%)	535 (65.3%)	139 (17.0%)
Males	827	143 (17.3%)	538 (65.1%)	146 (17.7%)

TABLE 3.
 Pubertal Timing and Classroom Fit at Wave 2:
 Means, Ns, and Standard Deviations

Decision Making Item	Classroom Timing						Age Timing					
	Less Developed		Average		More Developed		Late		On Time		Early	
	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.
Girls												
Classwork	1.73(143)	.45	1.60(531)	.24	1.62(135)	.24	1.71(93)	.46	1.63(657)	.48	1.50(58)	.50
Sum of Cong./Disc.	8.07(140)	1.39	7.80(516)	1.44	8.03(129)	1.47	8.12(90)	1.39	7.90(638)	1.43	7.46(57)	1.51
Sum of Actual							6.92(90)	1.06	6.63(647)	1.04	6.55(58)	1.01
Boys												
Sum of Actual	6.31(140)	1.02	6.56(526)	1.03	6.47(144)	.92						

TABLE 4.
 Pubertal Timing and Classroom Fit at Wave 2:
 F and Eta²

Decision-Making Item	Classroom Timing		Age Timing	
	F	Eta ²	F	Eta ²
Girls				
Classwork	3.88*	.01	3.38*	.008
Sum of Cong./Disc.	2.71	.007	3.83*	.01
Sum of Actual			3.83*	.008
Boys				
Sum of Actual	3.31*	.008		

* p < .05

TABLE 5.

Frequency in Percent of Kind of Discrepancy at Wave 1 and Wave 2:
Timing with Respect to Class for Girls

Type of Discrepance/ Congruence	Less Developed		Average		More Developed		Mean	
	W1	W2	W1	W2	W1	W2	W1	W2
Classwork Decision-Making								
Can't but Should	27.6	25.9	30.2	36.2	33.6	36.3	30.3	34.4
Can but Shouldn't	2.1	1.4	4.4	3.8	4.4	1.5	4.0	3.0
Can't and Shouldn't	62.8	60.8	58.3	50.7	51.1	49.6	57.8	52.3
Can and Should	7.6	11.9	7.2	9.4	10.9	12.6	7.9	10.4

TABLE 6.

Frequency in Percent of Kind of Discrepancy at Wave 1 and Wave 2:

Timing with Respect to Age for Girls

Type of Discrepancy/ Congruence	Late		On Time		Early		Mean	
	W1	W2	W1	W2	W1	W2	W1	W2
Classwork Decision-Making								
Can't but Should	19.6	26.9	31.3	33.8	36.2	48.3	30.3	34.0
Can but Shouldn't	6.5	2.2	3.8	3.2	1.7	1.7	4.0	3.0
Can't and Shouldn't	63.0	58.1	57.9	53.1	51.7	39.7	58.0	52.7
Can and Should	10.9	12.9	7.0	9.9	10.3	10.3	7.7	10.3
What to do next								
Can't but Should	9.9	10.8	11.2	14.6	8.6	19.3	10.9	14.5
Can but Shouldn't	24.2	22.6	22.9	20.1	8.6	26.3	22.0	20.8
Can't and Shouldn't	14.3	10.8	15.6	11.5	19.0	10.5	15.7	11.3
Can and Should	51.6	55.9	50.3	53.8	63.8	43.9	51.4	53.4

TABLE 7.

Pubertal Timing and Change in Classroom Fit:
Means, Ns, and Standard Deviations

Decision-Making Item	Classroom Timing						Age Timing					
	Less Developed		Average		More Developed		Late		On Time		Early	
	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.	\bar{X} (N)	S.D.
Girls												
Classwork	.088(143)	.44	-.027(523)	.48	.012(133)	.46	.052(91)	.46	.004(649)	.47	-.124(58)	.48
What to do next							.014(90)	.44	.011(646)	.45	-.149(57)	.48
Sum of Cong./Disc.	.199(138)	1.30	-.094(502)	1.30	.152(127)	1.34	.173(86)	1.29	.020(624)	1.29	-.481(57)	1.32
Sum of Actual							.208(89)	.98	-.021(640)	.91	-.089(58)	.94
Boys												
Sum of Actual	-.160(136)	.95	.055(513)	.98	-.044(142)	.81						

TABLE 8.

Pubertal Timing and Change in Classroom Fit:

F and Eta²

Decision-Making Item	Classroom Timing		Age Timing	
	F	Eta ²	F	Eta ²
Girls				
Classwork	3.47*	.01	2.61*	.007
What to do next			3.28*	.008
Sum of Cong./Disc.	3.84*	.01	4.77**	.012
Sum of Actual			2.70	.007
Boys				
Sum of Actual	3.01*	.008		

* p < .05

** p < .01

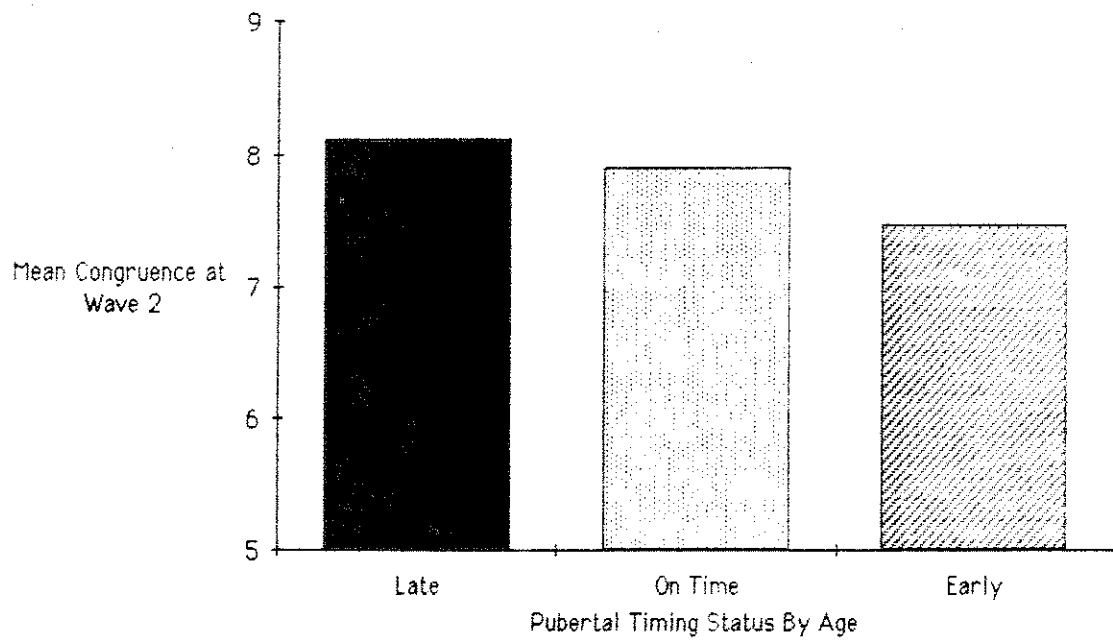


Figure 1. Classroom Fit at Wave 2 for Girls: Sum of 5 Items

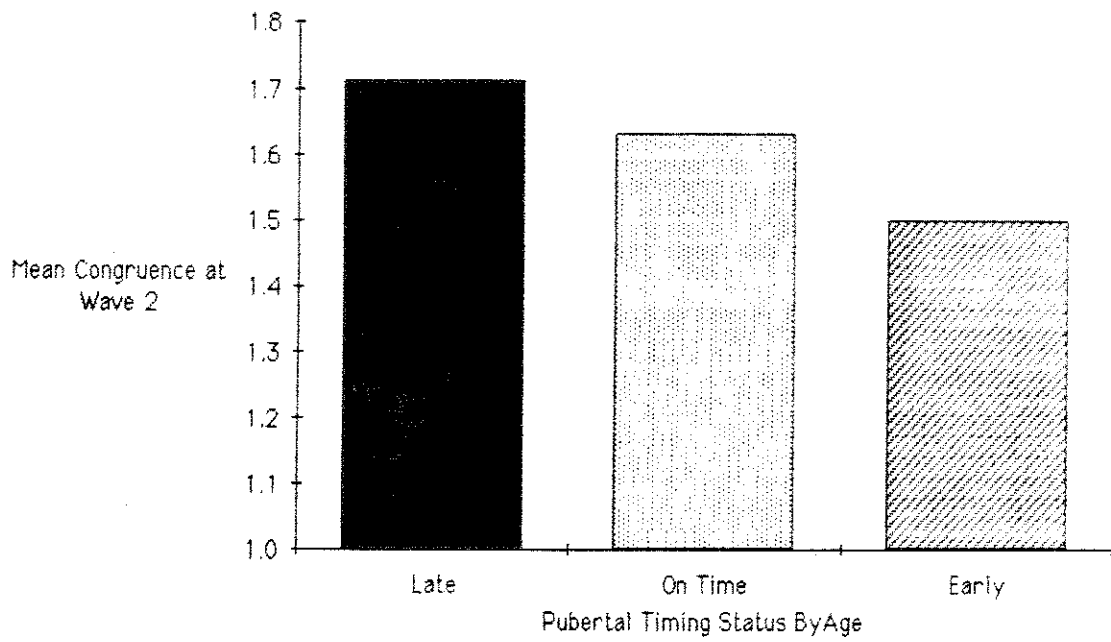


Figure 2. Classroom Fit at Wave 2 for Girls: Classwork Item

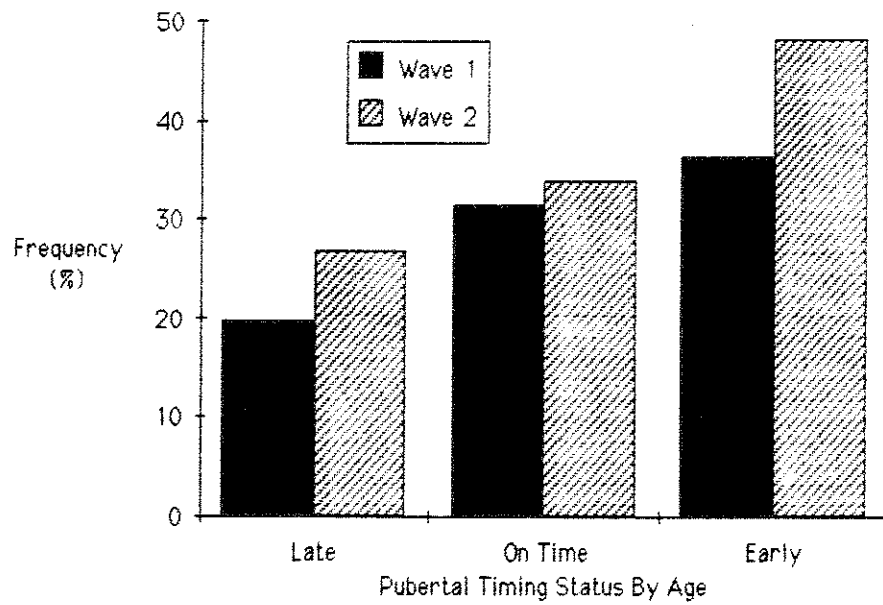


Figure 3. Frequency of "Can't but Should" in Girls: Classwork Item

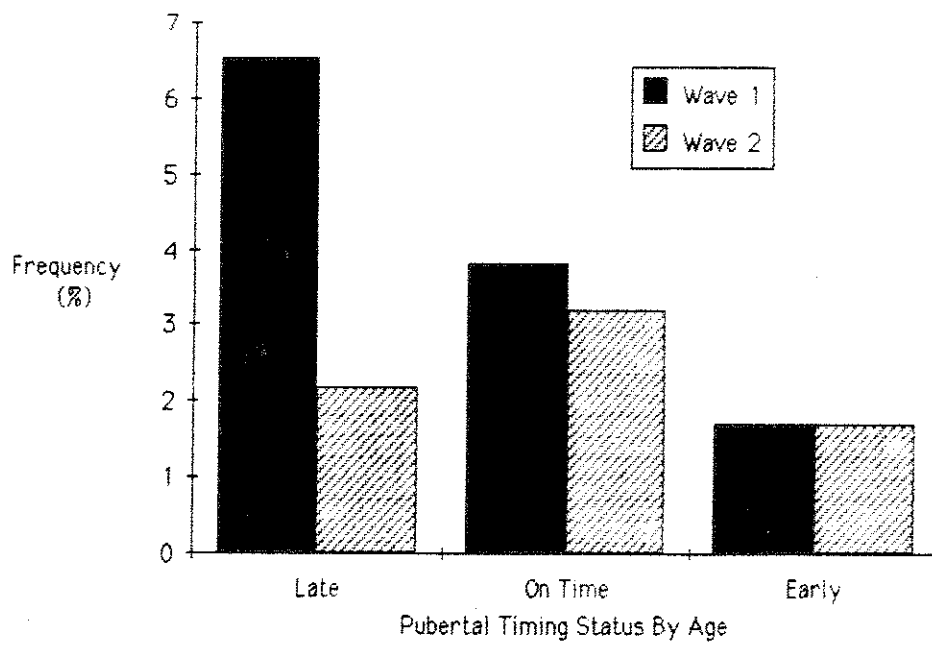


Figure 4. Frequency of "Can but Shouldn't" in Girls: Classwork Item

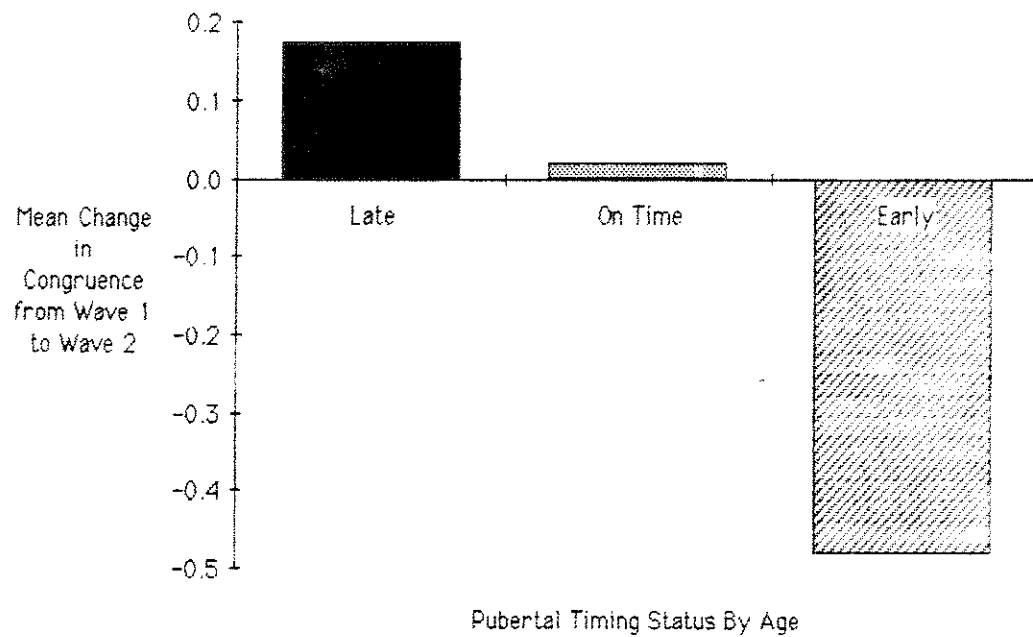


Figure 5. Pubertal Timing and Change in Classroom Fit for Girls: Sum of 5 Items

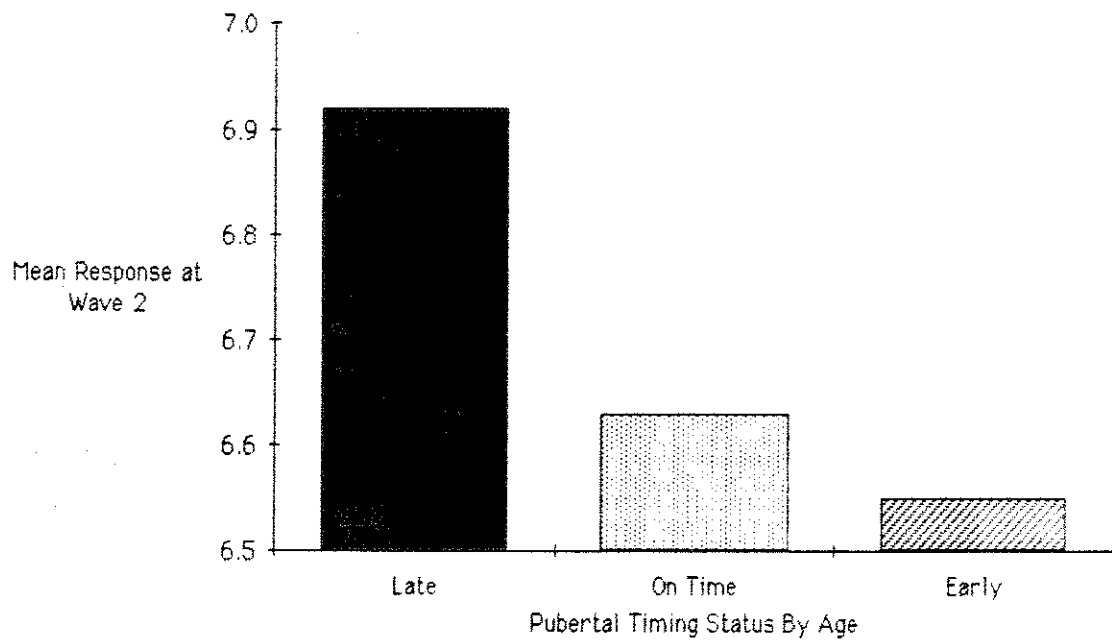


Figure 6. Perceptions of Actual Opportunities at Wave 2

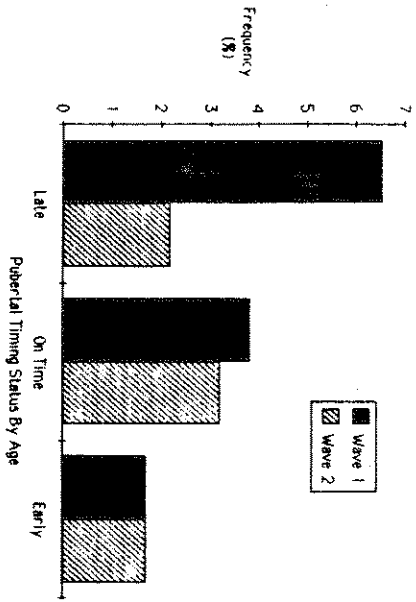


Figure 4 Frequency of "Can but Shouldn't" in Girls Classroom Item

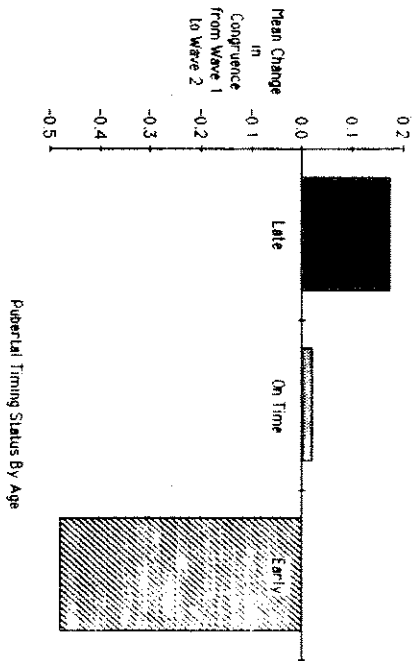


Figure 5 Pubertal Timing and Change in Classroom Fit for Girls Sum of 5 Items

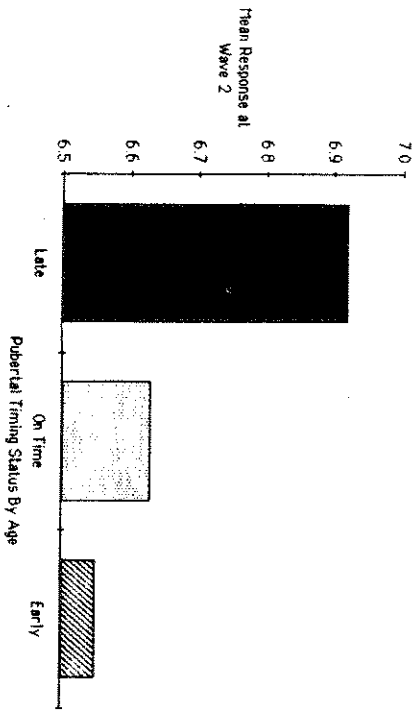


Figure 6. Perceptions of Actual Opportunities at Wave 2

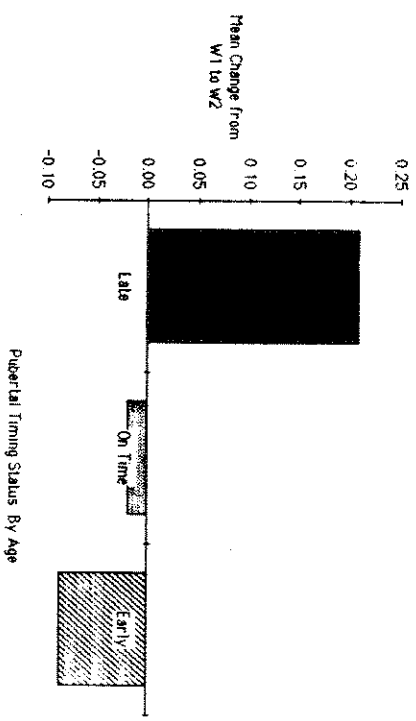


Figure 7. Change in Perceptions of Actual Opportunities from Wave 1 to Wave 2