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### Abstract

Non-parent college students enrolled in a lifespan developmental psychology course were assessed at two time points (beginning of the semester and shortly after midterm) on knowledge and attitudes that would likely be useful for the transition to parenthood. Students reported perceived change in knowledge and attitudes, and repeated measures analysis of variance (ANOVA) revealed statistically significant increases in knowledge of infant and child development, knowledge of reproduction and sexuality, rejections of vaccination myths, and appropriate expectations for children. Participants also reported significantly reduced belief in the use and value of corporal punishment, and parent-child role reversal.

### Keywords

teaching, parenting, developmental psychology, college students, attitudes

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## **Change in Knowledge and Attitudes among Students in an Undergraduate Developmental Psychology Class**

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Non-parent college students enrolled in a lifespan developmental psychology course were assessed at two time points (beginning of the semester and shortly after midterm) on knowledge and attitudes that would likely to be useful for the transition to parenthood. Students reported perceived change in knowledge and attitudes, and repeated measures analysis of variance (ANOVA) revealed statistically significant increases in knowledge of infant and child development, knowledge of reproduction and sexuality, rejections of vaccination myths, and appropriate expectations for children. Participants also reported significantly reduced belief in the use and value of corporal punishment, and parent-child role reversal.

### **INTRODUCTION**

College students gain much from their coursework, including benefits not directly related to academic advancement. For example, students completing coursework in developmental psychology before becoming parents may gain knowledge and understanding that may prove beneficial when transitioning to parenthood. While not all college students without children will go on to become parents, recent trends indicate that most men and woman in the United States will become parents at some point in their lifetimes (Child Trends, 2002).

The current investigation examined change in both knowledge and attitudes of non-parent students enrolled in an undergraduate lifespan developmental psychology class. Specifically, participants were assessed twice (at the beginning of the semester and after midterm examinations) on the following: knowledge of infant and child development, knowledge of reproduction and human sexuality, rejection of vaccination myths, and attitudes about parenting. I hypothesized that students would increase in knowledge and adaptive attitudes about parenting over the course of the semester.

Two general areas of change were examined: knowledge and attitudes. An academic class, by design, should increase knowledge of the topics covered. Attitudes, expectations, and beliefs, however, may be changed as knowledge increases. While change in knowledge and attitudes from taking college-level developmental psychology courses has been neglected in published research, some evidence involving students enrolled in other types of psychology classes indicates that course-sparked change in knowledge and beliefs is possible (e.g., Harrington, 2013; Kowalski & Taylor, 2009). The justifications for the specific areas hypothesized to change for this study are summarized below.

### **Knowledge**

The current investigation targeted knowledge areas included in most undergraduate developmental psychology classes and textbooks that would likely be beneficial to parents or those intending to start or expand a family: knowledge of infant and child development, knowledge of reproduction and sexuality, and rejection of vaccination myths. Accurate knowledge regarding infant and child development has repeatedly been linked to more optimal parenting style and parenting behaviors (Benasich & Brooks-Gunn, 1996; Karraker & Evans, 1996; Schaefer, 1991; Stevens, 1984). Such knowl-

edge may, of course, be shared among friends and family. Some parents, however, may rely partially or even fully on formal coursework for information on what to expect from their children. Those having taken a course on child development, not surprisingly, exhibit more knowledge of child development (Vandiver, Barrera, Kutac, & Mireles, 2007).

The next targeted knowledge area, knowledge of reproduction and sexuality, can be crucial for guaranteeing a healthy pregnancy or successful avoidance of or achievement of a pregnancy. There is much evidence that, even among highly educated individuals in developed nations, knowledge about fertility and reproduction is quite poor (Franklin & Dotger, 2011; Hammarberg et al., 2013; Koff, Rierdan, & Stubbs, 1990; Mortensen, Hegaard, Anderson, & Bentzen, 2012; Peterson, Pirritano, Tucker, & Lampic, 2012; Sabarre, Khan, Whitten, Remes, & Phillips, 2013). Various factors may explain this widespread ignorance or outright misinformation, from parents' reluctance to discuss sexual topics with their offspring (Lehr, Dilorio, Dudley, & Lipana, 2000) to the lack of sexual education beyond abstinence-based education in middle and high schools (Franklin & Dotger, 2011). Fortunately, there is evidence that sexual knowledge improves between freshman and senior years of college (Franklin & Dotger, 2011). There are numerous potential sources of increased sexual knowledge over the course of a college education, with coursework in biology, health, and development being obvious candidates.

Another crucial topic for any potential future parent is the necessity and safety of vaccinations. While university students' knowledge of the public and personal health benefits of childhood vaccinations and annual flu shots may be influenced by coverage in science classes and various educational campaigns, this evidence-based information may conflict with anti-vaccination messages spread by celebrities and non-evidence based websites. In fact, the spread of anti-vaccination messages despite overwhelming evidence for benefits and safety of recommended immunizations has sparked concern in the medical community (Womack, 2010). Potential parents may not realize how overwhelming the evidence is in favor of vaccine safety because of news media's attempts to present balanced coverage instead of factually accurate coverage (Dixon & Clarke, 2013). A college-level class addressing child development would not have the goal of giving equal discussion time to both sides of the argument. Instead, such a class would pres-

ent the state of empirical evidence, and, hopefully, provide students with a valuable weapon in making future decisions regarding their offspring's health.

## Attitudes

It is not radical to suggest that knowledge would increase from taking a college class. Attitudes, however, may transform, too, as knowledge is expanded. Past literature on class-related attitude change within a developmental psychology class, though, is somewhat sparse. Prior published research on changing attitudes resulting from taking a developmental psychology course have focused on attitudes toward aging and older adults (e.g., Moeller, 1982; Snyder, 2005). Research has supported attitude change following participation in other college-level psychology classes, however, including introductory psychology (Amsel et al., 2009; Mann & Himelein, 2008; Osberg, 1993), biological psychology (Harrington, 2013), positive psychology (Maybury, 2013), psychology of women (Wilson, 1997), research methods in psychology (Ciarocco, Lewandowski, & Van Volkom, 2013), and in related classes such as human sexuality (Pettijohn & Dunlap, 2010), death education (Rublee & Yarber, 1983; Shoemaker, Burnett, Hosford, & Zimmer, 1981), rape prevention programs (Foubert, Godin, & Tatum, 2010), and medical school classes (Mino, Yasuda, Tsuda, & Simodera, 2001; Woloschuk, Harasym, & Temple, 2004).

Many of these studies have suggested improvements not directly linked to academic performance or future career preparation. For example, students undergoing coursework in positive psychology have exhibited self-improvement beyond increased knowledge in course terms and concepts in the form of improved happiness, mindfulness, hope, and positive future orientation (Maybury, 2013). Students in a human sexuality course, while increasing sexual knowledge, additionally tended to increase in tolerance for sexual variations and perceived improvement in their current or future romantic relationships (Pettijohn & Dunlap, 2010). Likewise, students taking a psychology of women course became more open to women working outside the home and living a singles lifestyle (Wilson, 1997).

It does not seem unreasonable that parenting attitudes would improve in a similar manner following exposure to discussions of parenting and human development. Learning more about the complex processes they personally underwent in growing up may aid students to gain a greater appreciation for the numerous ways parents can benefit their children and themselves. While not involving a college-level course per se, there is evidence that participation in a parenting education program can change parenting attitudes in a more adaptive direction (Harrison, 1997; Stapen, 2005), with some indication that males experience particular benefit from such programs (Palusci, Crum, Bliss, & Bavolek, 2008). Based on classroom experience, end-of-semester feedback, and past research, I hypothesized the following changes over the course of the semester:

1. Perceived knowledge of course topics would increase.
2. Perceived attitudes toward course topics would shift in the direction of attitudes becoming more positive.
3. Knowledge of infant and child development would increase.
4. Knowledge of reproduction and sexuality would increase.
5. Rejection of vaccination myths would increase.
6. Attitudes about parenting would shift in the direction of more positive, sensitive, or autonomy-granting parenting.

## METHOD

### Participants

Participants included 168 students (40 males, 128 females) enrolled in two sections of an undergraduate course in lifespan developmental psychology at a public university in the southern United States. Students received bonus points for participation. Sample characteristics, including racial identification, major, marital or relationship status, number of students having previous coursework in relevant areas, age, and grade point average (GPA) are summarized in Table 1.

**TABLE 1.** Summary of participants (N=168).

	N	%	Mean	SD
<b>Sex</b>				
Female	128	76.19		
Male	40	23.81		
<b>Race</b>				
White	115	68.86		
Black	42	25.15		
Other	10	5.95		
Not answered	1	0.60		
<b>Major</b>				
Nursing	90	53.57		
Psychology	31	18.45		
Kinesiology	19	11.31		
Biology	7	4.17		
Other	20	11.90		
Not answered	1	0.60		
<b>Marital Status</b>				
In a relationship, not living with a romantic partner	73	43.45		
Single, not in a relationship	68	40.48		
Living with a romantic partner	20	11.90		
Married	5	2.98		
Divorced or separated	2	1.19		
<b>Prior coursework</b>				
(In)fertility, reproduction, and/or pregnancy	118	70.24		
Parenting or childrearing	86	51.50		
Infant or child development	122	73.49		
Vaccines or immunizations	77	46.11		
Age			20.29	3.55
GPA			2.99	0.65

### Measures

**Perceived learning.** At the Time 2 assessment, participants were asked a series of questions about how much they felt they had been changed by the class. First, students were asked, "How much do you feel you have learned in (course title and course number)?" Participants also estimated how much change the class brought on in a variety of areas. The rating scale ranged from 1 (no change) to 4 (drastic change).

**Knowledge of infant and child development.** Students'

knowledge of early development was assessed with 48 items from the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981). The KIDI has previously been supported as a valid and reliable measure of knowledge of infant and child development (Dichtelmiller et al., 1992; Hamilton & Orme, 1990). The KIDI items included in this study ask participants to indicate agreement, disagreement, or uncertainty with 48 statements regarding infant and child development (from birth to 2 years old). For each item, respondents earned 0 points for answers of “not sure.” For answers of “agree” or “disagree,” correct responses (i.e., agreeing with a factually correct statement or disagreeing with a false statement) merited 1 point and incorrect responses (i.e., agreeing with a false statement or disagreeing with a true statement) were scored - 1 point. This produced possible scores ranging from - 48 to 48 for the total from these items. Scores actually obtained at Time 1 ranged from 0 to 43 ( $M = 27.19$ ;  $SD = 8.55$ ) and those from Time 2 ranged from - 9 to 44 ( $M = 29.41$ ;  $SD = 10.78$ ). Descriptive statistics for KIDI scores are summarized in Table 2. Internal consistency of the KIDI items, as measured with Cronbach’s alpha, was acceptable for Time 1 ( $\alpha = .71$ ) and Time 2 ( $\alpha = .82$ ).

**Knowledge of reproduction and sexuality.** A 45-item inventory of students’ basic knowledge of puberty, menstruation, conception, pregnancy, and fertility was created for this study. The measure included 32 true/false items and 13 multiple choice questions. Sample true/false items were, “A man’s sperm can fertilize an egg days after having sex,” “Being overweight or underweight can both reduce a woman’s fertility,” and “Women should avoid getting X-rays, even at the dentist, during pregnancy.” Sample multiple choice items included, “An ultrasound of a pregnant woman’s uterus conducted 1 week after conception should reveal: a.) the gestational sac, yolk sac, and an embryo, b.) an embryo with a beating heart plate, c.) whether the baby will be a boy or girl, d.) nothing,” and “Boys become capable of impregnating a female sexual partner when: a.) their penis grows to a sufficient size, b.) they have their first erection, c.) they begin ejaculating or releasing fluid from the penis with an erection, d.) they grow hair on their testicles.” For each item, participants were awarded 1 point for a correct answer, meaning that possible scores ranged from 0 - 45. Actual scores

ranged from 0 - 38 for Time 1 ( $M = 26.09$ ;  $SD = 5.85$ ) and 0 - 40 for Time 2 ( $M = 29.38$ ;  $SD = 7.48$ ). Means and standard deviations can be found in Table 2. Internal consistency appeared lower for Time 1 responses ( $\alpha = .61$ ) on this scale than for Time 2 responses ( $\alpha = .75$ ). It is convention in the field to view a value of Cronbach’s alpha of .70 or higher as acceptable (Tavakol & Dennick, 2011). Because of the suboptimal level on internal consistency in the initial responses to this scale, analyses proceeded as planned but results were interpreted with caution.

**Rejection of vaccination myths.** A brief true/false survey of participants’ stance on seven common myths regarding vaccinations was developed for this study. All items were worded so that they reflected factually discredited beliefs about immunizations. The items included, “It is not necessary to vaccinate children against diseases that have been largely eradicated (eliminated) in the United States,” “Children’s vaccines contain high levels of mercury,” “Childhood vaccines cause autism,” “Getting too many vaccines can overwhelm the immune system and cause adverse reactions and even serious illness,” “It is better to let a child get chickenpox ‘naturally’ than get the vaccine for chickenpox,” “The flu shot causes the flu,” and “Getting the flu shot can cause a person to develop the neurological disorder dystonia.” The first six items were based on items included in a magazine article on vaccination-related myths (Maron, 2009), and the seventh item (about the flu shot potentially causing dystonia) was inspired by frequent classroom questions and e-mails from students about the Desiree Jennings case discussed on numerous televised news programs (e.g., Inside Edition, 2009). For each item, an answer of “False” was scored with 1 point, and an answer of “True” was scored as 0. Scores thus ranged from 0 to 7. Internal consistency was assessed at each time point using Cronbach’s alpha, with reliability below the standard cut-off of .70 at Time 1 ( $\alpha = .57$ ) but in the acceptable range for Time 2 ( $\alpha = .75$ ). Some argue that using a rigid cutoff for assessing reliability with Cronbach’s alpha is shortsighted (e.g., Schmitt, 1996) and that obtaining a value below .70 may not disparage a scale with evidently meaningful content coverage. Furthermore, one source of low value of alpha is small scale size (Tavakol & Dennick, 2011). Given the apparent face validity and small size of the rejection of

**TABLE 2.** Summary of Descriptive Statistics and Results of Repeated Measures ANOVA.

Measure	Subscale or score	Time 1 Range	Time 1 Mean	Time 1 SD	Time 2 Range	Time 2 Mean	Time 2 SD	F	Partial $\eta^2$	Cohen’s <i>d</i>
KIDI	Total points	0 - 43	27.19	8.55	-9 - 44	29.41	10.78	6.57 *	.05	.23
Knowledge of reproduction	Total correct	0 - 38	26.09	5.85	0 - 40	29.38	7.48	27.65 **	.16	.49
Vaccines myths	Total correct	0 - 7	4.64	1.74	1 - 7	6.28	1.35	95.79 **	.42	1.05
AAPI-2	Parental expectations	8 - 32	19.56	4.42	11 - 31	21.73	4.33	22.85 **	.22	.50
	Empathy	19 - 48	37.90	4.95	15 - 48	38.33	6.07	.42	.01	.08
	Corporal punishment	20 - 54	36.74	8.04	20 - 55	38.16	8.82	5.89 *	.07	.17
	Role reversal	9 - 35	25.60	4.57	12 - 35	27.02	5.58	7.13 **	.08	.28
	Power vs. independence	12 - 25	19.54	2.68	9 - 25	20.07	2.65	3.58	.04	.20

Note. \*  $p < .05$ ; \*\*  $p < .01$ .

vaccination myths scale, the Cronbach's alpha score at Time 1 may not accurately reflect the reliability of the scale, but results should be viewed as preliminary at best. At Time 1, the mean score was 4.64 (SD = 1.74). At Time 2, the average was 6.28 (SD = 1.35). See Table 2 for a summary of scores.

**Attitudes about parenting.** Participants' attitudes about parenting styles and practices were measured with the five constructs (Inappropriate Parental Expectations, Parental Lack of an Empathic Awareness of Children's Needs, Strong Belief in the Use and Value of Corporal Punishment, Parent-Child Role Reversal, and Oppressing Children's Power and Independence) of the Adult-Adolescent Parenting Inventory-2 (AAPI-2; Bavolek & Keene, 2010). The AAPI-2 was designed to assess parenting and child rearing attitudes of both adolescents and adults. This instrument was specifically created to yield an index of risk for engaging in abusive and neglecting parenting and child rearing behaviors. Bavolek and Keene (2010) have reported adequate content related validity, construct related validity, reliability (Cronbach's alpha over .80), and criterion validity in terms of differentiating abusive or neglecting parents from non-abusive parents. To obtain the final AAPI-2 construct scores used in hypothesis testing, participants' raw responses were entered into the online scoring program available with purchase of the instrument. The scoring program was developed such that higher scores would indicate more functional parental attitudes. Scores obtained for the AAPI-2 constructs at Time 1 and Time 2 are summarized in Table 2.

## Procedure

The intervention for this study involved a pre-existing course in lifespan developmental psychology conducted over the time frame of one semester (January to May). The lectures summarizing readings in the assigned textbook (Berger, 2010) were augmented with videos. Relevant to the topics targeted for the current study, students were shown an episode of a television show discussing the false nature of claims made by the anti-vaccination movement. In addition to four multiple choice exams and seven quizzes, students completed an essay assignment on the safety of vaccines.

All assessment procedures were approved by the university Institutional Review Board (IRB) before the study commenced. There were two online surveys, which were given separate from graded exams and quizzes for the class. Surveys were completed outside of class. The first was posted in the first two weeks of class (Time 1), and the second questionnaire was made available during two weeks following midterm administration (Time 2). The midterm was administered approximately at the midpoint of the semester (lasting from January to May), in mid-March. After indicating informed consent to take the initial (Time 1) survey, participants were instructed to enter an identification code made up of the last four digits of their student identification number and the last four digits of their phone number. They later were asked to enter the same identification number so that Time 1 and Time 2 responses could be matched for statistical analyses. For both assessments, participants were allowed to skip any items for which they felt uncomfortable answering.

## RESULTS

Hypotheses 1 and 2 were examined with percentages or mean and standard deviation. The most popular response (51.88%) to "How

much do you feel you have learned in (course title and course number)?" was "a tremendous amount." The second most frequent response was "a good bit" (47.50%). Only 3.13% of participants selected "a little bit," and less than 1% chose "almost nothing." The average rating [using the scale of 1 (no change) to 4 (drastic change)] for change in knowledge of infant development was 3.07 (SD = .70). For change in attitudes toward infants, the mean rating was 2.78 (SD = .87). Participants rated change in their knowledge of parenting at 3.12 (SD = .72) and attitudes toward parenting at 2.89 (SD = .88), on average. For change in knowledge of reproduction and conception, the mean rating was 2.57 (SD = .87). In terms of attitudes toward reproduction and conception, the average rating was 2.53 (SD = .90). Participants rated their change in knowledge of pregnancy at 2.79 (SD = .88) and attitudes toward pregnancy at 2.65 (SD = .98), on average. Participants, on average, endorsed "a good deal of change" ( $M = 3.04$ ;  $SD = .83$ ) in their knowledge about vaccines. For attitudes toward vaccines, participating students' ratings of their course-related change averaged 2.76 (SD = .92).

Hypotheses 3 – 6 were evaluated using repeated measures analysis of variance (ANOVA). Since this method of statistical analysis requires matching one set of responses to another, some data were missing for each comparison. This is why the degrees of freedom (df) differ from comparison to comparison. Data were missing because of skipped items preventing calculation of a total score, skipped sections, not taking both surveys, or failing to enter the assigned identification code correctly when completing either assessment. For the AAPI-2, score calculation was prevented by multiple factors, including missing information on sex or date of birth and skipped individual items (since the computerized scoring program requires sex, exact date of birth, and a complete set of responses). Since there were only two levels of comparison (Time 1 versus Time 2), the assumption of sphericity was not examined. All three knowledge variables (KIDI, knowledge of reproduction and sexuality, and rejection of vaccination myths) were negatively skewed at both assessment points. Since ANOVA procedures are generally robust to violations of normality, analyses proceeded as planned.

In examining Hypothesis 3, statistically significant change from Time 1 to Time 2 was supported for KIDI scores,  $F(1, 137) = 6.57$ ;  $p < .05$ ;  $p = .01$  (see Table 2). Effect size was assessed with both partial  $\eta^2$  and Cohen's  $d$ . Based on convention (as summarized in Prajapati, Dunne, & Armstrong, 2010) both indices suggested a small effect size for change in KIDI scores (partial  $\eta^2 = .05$ ; Cohen's  $d = .23$ ). Scores also increased significantly for knowledge of reproduction and sexuality,  $F(1, 142) = 27.65$ ;  $p < .01$ ;  $p = .00$ , thus supporting Hypothesis 4, with effects sizes estimated as medium to large (partial  $\eta^2 = .16$ ; Cohen's  $d = .49$ ). For Hypothesis 5, participants rejected more vaccination myths, on average, at the Time 2 assessment,  $F(1, 135) = 95.79$ ;  $p < .01$ ;  $p = .00$ . This particular realm of change reflected the largest effect size, with both calculated indices falling firmly above the cutoff for a large effect (partial  $\eta^2 = .42$ ; Cohen's  $d = 1.05$ ). Support for Hypothesis 6 was mixed. AAPI-2 scores did change significantly for parental expectations [ $F(1, 81) = 25.85$ ;  $p < .01$ ;  $p = .00$ ], corporal punishment [ $F(1, 81) = 5.89$ ;  $p < .05$ ;  $p = .02$ ], and role reversal [ $F(1, 81) = 7.13$ ;  $p < .01$ ;  $p = .009$ ], but not for empathy or power versus independence (see Table 2). Furthermore, as summarized in Table 2, estimates of effect

size for significant changes fell within the range for small to medium effect sizes.

## DISCUSSION

Results of this investigation provide preliminary support for the notion that college-level coursework in developmental psychology may foster increased knowledge relevant to parenting and more beneficial attitudes about parenting in at least some areas. Parenting is shaped by a number of factors, including parents' own childhood experiences, advice from and observations of family members, friends, and neighbors, and information offered in books, websites, and magazines. Parenting is further molded by parents' personality, child temperament, and parents' understanding of their children's behavior (Palusci et al., 2008). The non-academic benefits of studying developmental psychology have been thus far neglected in published research, but the current findings suggest that taking a developmental psychology class may provide an additional set of tools to aid future parents in the transition to and successful maintenance of sensitive and nurturing parenting.

This study, when combined with others (e.g., Maybury, 2013; Pettijohn & Dunlap, 2010; Wilson, 1997), contributes to a growing body of research suggesting that college-level coursework in psychology and other social sciences provides benefits beyond meeting academic requirements and preparing for certain careers. Increased knowledge of social science concepts and exposure to frank and open discussion of human behavior in a context of scientific theory and findings may encourage adaptive life skills in a variety of domains. Just as other social science coursework may bring on disequilibrium in one's belief system regarding mental health, the role of women, the acceptability or mere existence of various sexual or romantic options, a course on human development may expand and even challenge an individual's view of how and why humans change over the lifespan and the role parents play in that change.

There are, of course, several limitations to this study. First, the sample was limited to a single university and lacked diversity in terms of sex, race, and college major. In addition, assessment took place during an ongoing class, but did not continue once the class ended. It is impossible to ascertain from the data whether or not students maintained the gains observed. Also, there was no comparison group. Furthermore, students were compared across assessments on eight different types of knowledge or attitudes, which may have inflated the Type I error rate. In other words, conducting multiple tests may lead to multiple opportunities to report a false positive. The eight variables were analyzed separately because they appear theoretically distinct, but even if a Bonferroni correction is applied to the alpha level across the eight analyses (reducing the criterion from .05 to .006), the results for change in knowledge of reproduction and sexuality, rejection of vaccination myths, and parental expectations remain statistically significant.

Very importantly, the use of the same measures at both assessments, while allowing direct comparison of scores, created an opportunity for practice effects. Improvement may reflect familiarity with the measures rather than actual change in knowledge or attitudes. In addition, while results were statistically significant, practical significance may be modest given the small effect sizes for some analyses. The measures included were all self-report and may not predict actual future behavior. This is especially true of

the measures created specifically for the current investigation. The KIDI and AAPI-2 have at least been demonstrated to predict actual parenting behavior (see Conners, Whiteside-Mansell, Deere, Ledet, & Edwards; Huang, Caughy, Genevro, & Miller, 2005). Furthermore, students may have endorsed certain items without actually believing them. In other words, participants may have merely given the answer they thought a professor would want them to give. Indeed, recent research on the teaching of introductory psychology as a means to increase students' belief in psychology as a science has indicated that students are capable of holding multiple belief systems and may not hold the same beliefs they perceive their professors to endorse (Amsel et al, 2009).

Some measures were created anew for this investigation, specifically the knowledge of reproduction and sexuality and rejection of vaccination myths scales, and these may require refinement in future studies to achieve an acceptable level of internal consistency for the initial (Time 1) measurements. This may be accomplished by increasing the number of items and changing the response choices from a dichotomous format to a continuous scale (i.e., changing "true/false" to "not at all true" to "absolutely true" using a 5- to 7-point scale). Additionally, the rejection of vaccination myths, because of its items all being worded in the same direction (i.e., all "false"), a response set may have been invoked. Future refinement of this measure should alternate between "true" and "false" responses as the correct items. Finally, there were missing data, as reflected in the differing *df* for different tests, from students skipping items necessary for score calculation or failing to enter their identification numbers correctly.

These limitations, when taken together, place the current findings in the realm of a starting point in a line of research rather than a definitive answer to how a class in developmental psychology may benefit students. Future studies are encouraged, but researchers must strive to overcome these limitations. Ideally, the study should be replicated on other university campuses and recruit a more diverse group of students. A comparison group of students not enrolled in developmental psychology is highly desirable. The knowledge of reproduction and rejection of vaccination myths scales should be improved in line with above recommendations. In addition, given recent findings by Amsel and colleagues (2009), it would be interesting to inquire about students' perceptions of the professor's knowledge and beliefs separately from their own. In addition to scale refinement, follow-up assessment after the close of the semester would allow for better understanding of how long changes in knowledge and attitudes persist. Prospective longitudinal studies following college students to their transition to actual parenthood and incorporating observational as well as self-report measures would be difficult to conduct but highly desirable. Special care should be taken to encourage students to answer relevant items and enter identification numbers carefully.

These results, while certainly preliminary, suggest possible practical benefits of taking a developmental psychology course. Students may be required or encouraged to take such a course because of anticipation that the subject matter will be useful in the career being sought after college graduation. This study and any future study replicating its results, especially with improved measures and research design, make a case for any student planning to become a parent someday to take a developmental psychology class during the college career.

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