



AP[®] Psychology

COURSE AND EXAM DESCRIPTION

Effective
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Introduction

The AP Psychology framework is aligned with content and skills used in college-level courses and recommended by the American Psychological Association (APA) Introductory Psychology Initiative. The framework is organized into five units that mirror the content organization recommended by the APA. This framework integrates key skills throughout the course that students need to be successful in subsequent courses in psychology. The focus of the framework is to provide the student with a learning experience that supports learning of introductory psychology content and skills.

Course Framework Components

Overview

This course framework provides a clear and detailed description of the course requirements necessary for student success. The framework specifies what students should know and be able to do to qualify for college credit and/or placement.

The course framework includes two essential components:

1 SCIENCE PRACTICES

The science practices and skills are central to the study and practice of psychology. Students should develop and apply the described skills on a regular basis over the span of the course.

2 COURSE CONTENT

The course content is organized into units of study that provide a suggested sequence for the course. These units comprise the content and conceptual understandings that colleges and universities typically expect students to be proficient in to qualify for college credit and/or placement.

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AP PSYCHOLOGY

Science Practices

The science practices and skills for AP Psychology describe what a student should be able to do while exploring course concepts. The table that follows presents these practices along with their corresponding skills that students should develop during the AP Psychology course. These skills form the basis of tasks on the AP Psychology Exam.

The unit guides that follow embed and spiral these skills throughout the course, providing teachers with one way to integrate the skills into the course content, with sufficient repetition to prepare students to apply those skills when taking the AP Psychology Exam.

More detailed information about teaching the science practices and skills can be found in the [Instructional Approaches](#) section of this publication.



Science Practices

The table that follows presents the science practices that students should develop during the AP Psychology course. These practices form the basis of tasks on the AP Psychology Exam.

Practice 1	Practice 2	Practice 3	Practice 4
Concept Application 1 <i>Apply psychological perspectives, theories, concepts, and research findings.</i>	Research Methods and Design 2 <i>Evaluate qualitative and quantitative research methods and study designs.</i>	Data Interpretation 3 <i>Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.</i>	Argumentation 4 <i>Develop and justify psychological arguments using evidence.</i>
1.A Apply psychological perspectives, theories, concepts, and research findings to a scenario. <ul style="list-style-type: none">Explain how psychological perspectives, theories, concepts, or research findings apply to a scenario.Compare and contrast how perspectives or theories explain behavior and mental processes.Draw logical and objective conclusions about behavior and mental processes. 1.B Explain how cultural norms, expectations, and circumstances, as well as cognitive biases apply to behavior and mental processes. <ul style="list-style-type: none">Explain how cultural norms, expectations, and circumstances apply to a scenario.Explain how cognitive biases such as confirmation bias, hindsight bias, and overconfidence apply to a scenario.Explain implications of applying psychological concepts or theories in inappropriate or discriminatory ways.	2.A Determine the type of research design(s) used in a given study. <ul style="list-style-type: none">Determine whether a study is using experimental or non-experimental methodologies.<ul style="list-style-type: none">Experimental methodology involves the use of independent variable(s) and random assignment to groups.Non-experimental methodologies include case study, correlation, meta-analysis, and naturalistic observation. 2.B Evaluate the appropriate use of research design elements in experimental methodology. <ul style="list-style-type: none">State the hypothesis of a research scenario, including whether the hypothesis is falsifiable.Identify operational definitions of variables in research scenarios to determine how well the definitions allow for the study to be replicated.Identify the independent variable(s), dependent variable(s), and/or confounding variable(s) in a research scenario.	3.A Identify psychology-related concepts in descriptions or representations of data. <ul style="list-style-type: none">Identify variables in descriptions or representations of data.Identify statistical and psychological concept(s) depicted in a table, graph, chart, or figure. 3.B Calculate and interpret measures of central tendency, variation, and percentile rank in a given data set. <ul style="list-style-type: none">Calculate mean, median, mode, and range from a set of data.Explain the elements of the normal curve including percentages of distributions of scores across the curve, how to interpret skewness in a graph, and how to interpret a bimodal distribution.Interpret mean, median, mode, range, standard deviation, and percentile rank from a set of data.Explain how regression toward the mean occurs as more data are collected.	4.A Propose a defensible claim. 4.B Provide reasoning that is grounded in scientifically derived evidence to support, refute, or modify an established or provided claim, policy, or norm. <ul style="list-style-type: none">Identify reasoning that supports, refutes, or modifies an established or provided claim, policy, or norm.Use scientifically derived evidence to explain nuances of claims, policies, or norms.Using scientifically derived evidence, explain how or why a claim, policy, or norm is or is not effective.

(Continued)

Practice 1**Concept Application****1**

Apply psychological perspectives, theories, concepts, and research findings.

Practice 2**Research Methods and Design**

Evaluate qualitative and quantitative research methods and study designs.

Practice 3**Data Interpretation****3**

Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.

Practice 4**Argumentation****4**

Develop and justify psychological arguments using evidence.

- In a research scenario, identify the participants of a study who make up the sample that is drawn from a population.
 - Determine whether the sample used is representative of the population and is selected by either random sampling or convenience sampling.
 - Evaluate whether the sampling procedure involves sampling bias.
 - Determine to what extent the sampling method allows for results of the study to be generalized.
 - Identify the experimental and control groups, including the process and purpose for assigning people to groups, whether a placebo was used with the control group, and the effect of the placebo on the results.
 - Determine whether the study used single-blind or double-blind procedures to control for confounding variables like experimenter bias or the social desirability bias.
 - Determine whether the measurement instrument for experimental research used qualitative (such as structured interviews) or quantitative measures (such as Likert scales).
 - Describe the impact of appropriate representation of participants in conducting research and on the outcomes of research.
 - Explain how conclusions from experimental research evolve via scientific processes such as peer review and replication.
- **3.C** Interpret quantitative or qualitative inferential data from a given table, graph, chart, figure, or diagram.
 - Describe trends in and relationships between the variables as depicted in the data presented, such as interpreting correlational data from a scatterplot, including the correlation coefficient.
 - Interpret results from research that could be expressed as effect sizes or statistical significance.

(Continued)

Practice 1**Concept Application****1**

Apply psychological perspectives, theories, concepts, and research findings.

Practice 2**Research Methods and Design**

Evaluate qualitative and quantitative research methods and study designs.

Practice 3**Data Interpretation****3**

Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.

Practice 4**Argumentation****4**

Develop and justify psychological arguments using evidence.

2.C Evaluate the appropriate use of research design elements in non-experimental methodologies.

- State the hypothesis of a research scenario, including whether the hypothesis is falsifiable.
- Identify operational definitions of variables in research scenarios to determine how well the definitions allow for the study to be replicated.
- Identify the variables of interest in a research scenario.
- Evaluate whether the results of a correlational study have a directionality problem or third variable problem that demonstrates that correlation does not equal causation.
- Determine whether the measurement instrument for non-experimental research was qualitative (such as structured interviews) or quantitative measures (such as Likert scales).
- Determine whether the research used a survey technique and whether the wording of the survey could lead respondents to demonstrate self-report bias or social desirability bias.
- Describe the impact of appropriate representation of participants in conducting research and on the outcomes of research.
- Explain how conclusions from non-experimental research evolve via scientific processes such as peer review and replication.

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Practice 1**Concept Application****1**

Apply psychological perspectives, theories, concepts, and research findings.

Practice 2**Research Methods and Design****2**

Evaluate qualitative and quantitative research methods and study designs.

Practice 3**Data Interpretation****3**

Evaluate representations of psychological concepts in quantitative and qualitative research, including tables, graphs, charts, figures, and diagrams.

Practice 4**Argumentation****4**

Develop and justify psychological arguments using evidence.

2.D Evaluate whether a psychological research scenario followed appropriate ethical procedures.

- Explain the importance of institutional review for research involving human and non-human animals.
- Determine whether proper informed consent and/or informed assent was used in a research scenario.
- Determine whether researchers took steps to protect participants from harm.
- Determine whether researchers kept participant information confidential and/or anonymous.
- Determine whether deception was used in the research (possibly with the help of research confederates).
- Determine whether researchers used proper debriefing techniques with participants at the conclusion of the research.

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AP PSYCHOLOGY

Course Content

The AP Psychology framework provides a clear and detailed description of the course requirements necessary for student success. The framework specifies what students must know, be able to do, and understand, with a focus on ideas that encompass perspectives, theories, concepts, and research findings of the discipline. The framework also encourages instruction that prepares students for advanced coursework in the field of psychology at the undergraduate level.

UNITS

The five units in AP Psychology and their weighting on the multiple-choice section of the AP Exam are listed on the following page.

Pacing recommendations at the unit level and on the Course at a Glance provide suggestions for how to teach the required course content and administer the Progress Checks. The suggested class periods are based on a schedule in which the class meets five days a week for 45 minutes each day. While these recommendations have been made to aid planning, teachers should adjust pacing based on the needs of their students, alternate schedules (e.g., block scheduling), or their school's academic calendar.

Units of Instruction	Exam Weighting
Unit 1: <i>Biological Bases of Behavior</i>	15–25%
Unit 2: <i>Cognition</i>	15–25%
Unit 3: <i>Development and Learning</i>	15–25%
Unit 4: <i>Social Psychology and Personality</i>	15–25%
Unit 5: <i>Mental and Physical Health</i>	15–25%

TOPICS

Each unit is broken down into teachable segments called topics. The topic pages (starting on page 27) contain the required content for each topic.

Course at a Glance

Plan

The Course at a Glance provides a useful visual organization of the AP Psychology curricular components, including:

- Sequence of units, along with approximate weighting and suggested pacing. Please note, pacing is based on 45-minute class periods, meeting five days each week for a full academic year.
- Progression of topics within each unit.
- Science practices across units.

Teach

SCIENCE PRACTICES

- 1** Concept Understanding
- 2** Research Methods and Design
- 3** Data Interpretation
- 4** Argumentation

Required Course Content

Each topic contains required Learning Objectives and Essential Knowledge Statements that form the basis of the assessment on the AP Exam.

Assess

Assign the Progress Checks—either as homework or in class—for each unit. Each Progress Check contains formative multiple-choice and free-response questions. The feedback from the Progress Checks shows students the areas where they need to focus.

UNIT 1 Biological Bases of Behavior

~17–23 Class Periods **15–25%** AP Exam Weighting

- 1.1** Interaction of Heredity and Environment
- 1.2** Overview of the Nervous System
- 1.3** The Neuron and Neural Firing
- 1.4** The Brain
- 1.5** Sleep
- 1.6** Sensation

UNIT 2 Cognition

~17–23 Class Periods **15–25%** AP Exam Weighting

- 2.1** Perception
- 2.2** Thinking, Problem-Solving, Judgments, and Decision-Making
- 2.3** Introduction to Memory
- 2.4** Encoding Memories
- 2.5** Storing Memories
- 2.6** Retrieving Memories
- 2.7** Forgetting and Other Memory Challenges
- 2.8** Intelligence and Achievement

Progress Check 1

Multiple-choice: ~15 questions
Free-response: 2 questions

- Article Analysis Question (partial)
- Article Analysis Question (partial)

Progress Check 2

Multiple-choice: ~25 questions
Free-response: 2 questions

- Evidence-Based Question
- Evidence-Based Question

NOTE: Partial versions of the free-response questions are provided to prepare students for more complex, full questions that they will encounter on the AP Exam.

UNIT 3 Development and Learning

~17–23 Class Periods 15–25% AP Exam Weighting

- 1**
2 3.1 Themes and Methods in Developmental Psychology
- 1**
3
4 3.2 Physical Development Across the Lifespan
- 2** 3.3 Gender and Sexual Orientation
- 1**
2
4 3.4 Cognitive Development Across the Lifespan
- 1**
2 3.5 Communication and Language Development
- 1**
2 3.6 Social-Emotional Development Across the Lifespan
- 1**
2
3
4 3.7 Classical Conditioning
- 1**
3
4 3.8 Operant Conditioning
- 1**
4 3.9 Social, Cognitive, and Neurological Factors in Learning

Progress Check 3

Multiple-choice: ~20 questions
Free-response: 2 questions

- Article Analysis Question
- Evidence-Based Question

UNIT 4 Social Psychology and Personality

~17–23 Class Periods 15–25% AP Exam Weighting

- 1**
2
4 4.1 Attribution Theory and Person Perception
- 1**
3
4 4.2 Attitude Formation and Attitude Change
- 1**
2
3
4 4.3 Psychology of Social Situations
- 1**
2 4.4 Psychodynamic and Humanistic Theories of Personality
- 1**
2
3 4.5 Social-Cognitive and Trait Theories of Personality
- 1**
2 4.6 Motivation
- 1**
2
3
4 4.7 Emotion

Progress Check 4

Multiple-choice: ~10 questions
Free-response: 2 questions

- Article Analysis Question
- Evidence-Based Question

UNIT 5 Mental and Physical Health

~17–23 Class Periods 15–25% AP Exam Weighting

- 1**
3 5.1 Introduction to Health Psychology
- 1**
2
4 5.2 Positive Psychology
- 1**
2
4 5.3 Explaining and Classifying Psychological Disorders
- 1**
2
3
4 5.4 Selection of Categories of Psychological Disorders
- 1**
2
3
4 5.5 Treatment of Psychological Disorders

Progress Check 5

Multiple-choice: ~30 questions
Free-response: 2 questions

- Article Analysis Question
- Evidence-Based Question

Sample Exam Questions

The sample exam questions that follow illustrate the relationship between the course framework and the AP Psychology Exam and serve as examples of the types of questions that appear on the exam. These sample questions do not represent the full range and distribution of items on an official AP Psychology Exam. After the sample questions is a table that shows which skill, learning objective, and essential knowledge statement each question assesses. The table also provides the answers to the multiple-choice questions.

Section I: Multiple-Choice

1. Oksana experiences pleasurable feelings when she hugs her mother. Recently, her mother started wearing a new perfume, which Oksana can smell when she hugs her mother. When Oksana is shopping, she smells that new perfume near the counter where it is sold. She immediately feels the same pleasurable feelings as she does when she hugs her mother. In terms of classical conditioning, which of the following is the smell of the new perfume?
 - (A) Unconditioned stimulus (UCS)
 - (B) Conditioned stimulus (CS)
 - (C) Positive reinforcement
 - (D) Unconditioned response (UCR)

2. Researchers conducted a study with 200 participants who had been diagnosed with schizophrenia and a comparison group of 200 patients who had not been diagnosed with schizophrenia. The researchers found that participants who had been diagnosed with schizophrenia had significantly larger ventricles¹ than a comparison group. Based on this finding, the researchers concluded that enlarged ventricles cause people to develop schizophrenia. Which of the following most accurately describes why this conclusion is flawed?
- (A) The researchers' sample is not large enough to allow researchers to draw any scientific conclusions.
- (B) The researchers' results indicate no correlation between the variables.
- (C) The researchers' conclusion does not adequately account for the role of GABA in developing schizophrenia.
- (D) The researchers' cause-and-effect conclusions cannot be made because no independent variable is manipulated.

¹Brain cavities filled with fluid.

**Authoritative Parenting Style
Assessment Scores**

7
6
4
9
11
8
9
12
5
9

3. Ten primary caregivers of children completed an assessment to determine the degree to which they practice authoritative parenting. The table shows the participants' scores on this assessment. The lowest possible score is 1, meaning the degree of authoritative parenting is low. The highest possible score is 15, meaning the degree of authoritative parenting is high. Based on the table, what is the range of the caregivers' scores?
- (A) 4
- (B) 8
- (C) 9
- (D) 12

21. Which of the following psychological perspectives would best help researchers answer questions about the relationship between heredity and the environment regarding the development of disorders such as anorexia nervosa?
- (A) Cognitive
 - (B) Psychodynamic
 - (C) Humanistic
 - (D) Biological

Section II: Free-Response

The following are examples of the free-response question types found on the exam. Scoring rubrics for each question follow the sample question.

QUESTION 1: ARTICLE ANALYSIS QUESTION (AAQ)

Your response to the question should be provided in six parts: A, B, C, D, E, and F. Write the response to each part of the question in complete sentences. Use appropriate psychological terminology in your response.

Using the source provided, respond to all parts of the question.

- (A) Identify the research method used in the study.
- (B) State the operational definition of executive functioning.
- (C) Describe the meaning of the differences in the means for the immediate recall task between the multivitamin group and the placebo group.
- (D) Identify at least one ethical guideline applied by the researchers.
- (E) Explain the extent to which the research findings may or may not be generalizable using specific and relevant evidence from the study.
- (F) Explain how at least one of the research findings supports or refutes the researchers' hypothesis that taking a multivitamin slows cognitive decline in later life.

Source

Introduction		
<p>Few large-scale, long-term studies have been conducted to test whether taking a multivitamin makes a difference in improving memory ability as one ages. In this study, researchers examined whether taking a multivitamin slows cognitive decline in later life.</p>		
Participants		
<p>An earlier study, which was conducted in 2017 and included over 21,000 people, examined the effects of taking a multivitamin on health outcomes. From that study's sample, over 7,000 people received a mailed invitation to participate in this study. Of those who received the invitation, almost 4,000 participants agreed to participate and were accepted. To be accepted, participants had to be over 65 year of age if women and over 60 years of age if men. In addition, they could not participate if they had ever had a stroke, if they had received a cancer diagnosis in the two years before the study, or if they had a history of any other serious illnesses. Participants had to be able to communicate in English and have access to an Internet-connected computer.</p> <p>A computer randomly assigned participants to two groups. Participants in Group 1 received a pack of multivitamins each month by mail to take one pill twice a day. Participants in Group 2 received a pack of placebo pills in the same type of packaging as Group 1 and with the same instructions. The sample size of Group 1 was 1,758 people, and the sample size of Group 2 was 1,804 people. The demographics of each group are listed in the table:</p>		
Demographic	Group 1 – Multivitamin	Group 2 – Placebo
	Percent or Mean (Standard Deviation in parenthesis when reported)	Percent or Mean (Standard Deviation in parenthesis when reported)
Age	70.9 (4.5)	71.0 (4.6)
Gender		
Men	32.9%	33.4%
Women	67.1%	66.6%
Race/Ethnicity		
White	93.1%	93.5%
African American	2.3%	2.6%
Hispanic	1.5%	1.4%
Other race or Multiple races	1.8%	1.2%
Asian or Native Hawaiian	0.2%	0.1%
American Indian or Alaska Native	1.1%	1.2%

Method

Once a year for 3 years, participants were asked to complete an online test to evaluate episodic memory and executive functioning. Instructions on how to access the test materials were emailed to participants, and participants who responded to the email indicated their consent. The participants received a \$15 gift card for each annual assessment, regardless of completion.

The multivitamin used is widely available in the United States. Side effects of taking the multivitamin include low rates of stomach pain, diarrhea, skin rash, bruising, and an increased rate of gastrointestinal bleeding, which are considered normal side effects for those taking a multivitamin in the general population.

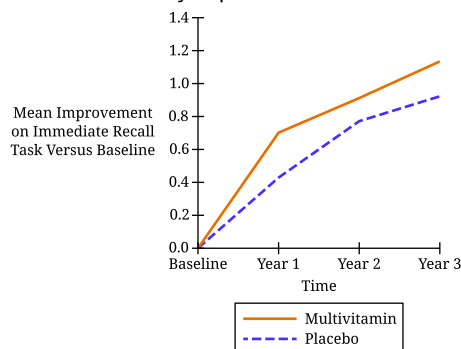
Two different tasks were used to measure episodic memory and executive functioning in this study:

- To measure episodic memory, participants completed a recall task in which they were first shown a set of words, presented one at a time for three seconds each. They were then asked to recall the set of words, once immediately after the word list was presented and again after 15 minutes had passed. Participants who recalled more words correctly earned higher scores on this test.
- To measure executive functioning, participants were first shown one set of items and were then shown a second set of items. They were asked to identify whether items in the second set of items were the same as or different from the first set of items they were shown. Participants earned higher scores the more quickly they correctly identified whether the items from the second set of items were the same as or different from those in the original set.

Results and Discussion

Compared with participants taking a placebo, participants receiving the multivitamin had significantly greater improvement in the recall task at the end of the first year. Performance on the immediate recall memory task in Group 1 improved from a mean of 7.10 words at baseline to 7.81 words after 1 year of taking the multivitamin, an improvement mean of 0.71. In Group 2, which received the placebo pills, performance on the immediate recall memory task improved from a mean of 7.21 words at baseline to 7.65 words after 1 year, an improvement mean of 0.44. When comparing the multivitamin group with the placebo group, averaged across all 3 years of intervention, findings suggest that the memory improvement is sustained over time, as shown in the graph.

Comparison of Memory Improvement Between 2 Groups



Researchers estimate that the effect of the multivitamin intervention improved memory performance in participants in the multivitamin group by the equivalent of 3.1 years of age-related memory change as compared to participants in the placebo group. Researchers also found that executive functioning was not significantly impacted by taking a multivitamin.

The findings suggest that the greatest benefit to taking a multivitamin is found in immediate memory recall, something especially vulnerable in aging adults.

Adapted from *The American Journal of Clinical Nutrition*.

Reprinted from *The American Journal of Clinical Nutrition*, 118, Yeung, L-K., Alschuler, D. M., Wall, M., Luttman-Gibson, H., Copeland, T., Hale, C., Sloan, R. P., Sesso, H. D., Manson, J. E., Brickman, A. M. Multivitamin supplementation improves memory in older adults: A randomized clinical trial, pages 273–282, Copyright 2023, with permission from Elsevier.

QUESTION 2: EVIDENCE-BASED QUESTION (EBQ)

This question has three parts: Part A, Part B, and Part C. Use the three sources provided to answer all parts of the question.

For Part B and Part C, you must cite the source that you used to answer the question. You can do this in two different ways:

- Parenthetical Citation:

For example: “...(Source A)”

- Embedded Citation:

For example: “According to Source A,…”

Write the response to each part of the question in complete sentences. Use appropriate psychological terminology.

Using the sources provided, develop and justify an argument about the best time for school to start for students in grades 6 to 12.

- Propose a specific and defensible claim based in psychological science that responds to the question.
- Support your claim using at least one piece of specific and relevant evidence from one of the sources.
 - Explain how the evidence from Part B (i) supports your claim using a psychological perspective, theory, concept, or research finding learned in AP Psychology.
- Support your claim using an additional piece of specific and relevant evidence from a different source than the one that was used in Part B (i).
 - Explain how the evidence from Part C (i) supports your claim using a different psychological perspective, theory, concept, or research finding learned in AP Psychology than the one that was used in Part B (ii).

Source A

Introduction
Researchers investigated the effects of changes in school start times on students in elementary, middle, and high school. They were particularly interested in how school start times related to factors such as academic performance and sleep.
Participants
Eight school districts in Minnesota, and a total of 38,019 students, were involved in this study. Most of the students were white (54.7%), with 12.4% Hispanic, 8.8% Black, 8.6% Asian, 4.9% multiracial, 3.6% Somali, 3.1% American Indian, and 2.1% Hmong ² . The sample consisted of 49.2% women and 50.8% men. The grade levels of students were evenly divided (i.e., 25.6% grade 5, 27.3% grade 8, 26.1% grade 9, and 20.9% grade 11).
Method
Four of the school districts observed shifted to a later school start time, and the four other districts kept an earlier school start time. Two variables were measured in this study. The first was the grade point average (GPA) of the students. Students reported the course grades they generally received during their current school year (e.g., Mostly As, Mostly Bs, etc.). The responses were converted to values on a 4.0 scale (mean = 3.2, standard deviation = 0.9). The second measured variable was the amount of sleep students generally got on a school night and whether they met the recommended hours of sleep for their grade level.
Results and Discussion
Results showed that students in school districts that moved to a later start time reported higher GPAs and that higher proportions of those students reported obtaining the recommended hours of sleep as compared with students in districts with the earlier school start time. The increase in GPA for each grade in the districts with a later school start time (that is, comparing grade 5, grade 8, grade 9, and grade 11) over the districts with the earlier school start time ranged from 0.07 to 0.13 GPA points. The probability of meeting the recommended hours of sleep increased by 16% for students in districts with a later school start time, a statistically significant finding. However, for students in districts with a later school start time, the likelihood of students obtaining the recommended hours of sleep increased by 35% in grade 5, 11% in grade 8, 8% in grade 9, and 5% in grade 11. Only the grade 8 increase was statistically significant. The likelihood of obtaining the recommended hours of sleep for students in districts with an early school start time did not change at statistically significant levels.

Adapted from *American Educational Research Association*.

Caesar, J., Lamm, R., Rodriguez, M.C., & Heistad, D.J. (2021, April 10). Changes in school start time have a significant effect in the amount of sleep and reported grade point average of students [Paper presentation]. *American Educational Research Association Annual Meeting*. <https://conservancy.umn.edu/handle/11299/194887>

²an ethnic group that lives primarily in Southwest China and in countries in Southeast Asia such as Thailand, Laos, Myanmar, and Vietnam

Source B

Introduction
<p>Most adolescents in the United States do not obtain sufficient sleep. Early school start times play a significant role in adolescent sleep deprivation. Most primary and secondary schools begin classes earlier than 8:30 am. Perceived barriers to implementing a delayed school start time have been suggested in the literature but have not been measured. This study explored both the potential barriers to implementing later high school start times, and other, facilitating factors that may encourage adoption of this practice.</p>
Participants
<p>A convenience sample of 116 respondents participated in the survey, with a response rate of 7.2%. The participants' job titles included superintendents (7.8%; 9 participants), assistant superintendents (16.4%; 19 participants), principals (20.7%; 24 participants), assistant principals (42.2%; 40 participants), counselors (11.2%, 13 participants), and school board members (1.7%; 2 participants). At the time of this study (2017), all worked in a high school that was identified as having implemented a delayed school start time.</p>
Method
<p>School administrators who had delayed their school start times were invited to complete an online questionnaire ranking the perceived barriers and facilitating factors for implementing the delayed start times.</p> <p>Participants were asked if they considered each barrier question as "significant," "moderate," "minor barrier," or "not a barrier" to interfere with implementing a delayed school start time. These statements referred to transportation issues, extracurricular considerations, stakeholder groups who were resistant to change, and additional factors such as time for homework and amount of time waiting for the bus.</p> <p>Participants were also asked if each facilitating factor statement was "significant," "moderate," "minor," or "not a facilitating factor" to support implementing a delayed school start time. These statements addressed stakeholder involvement and education, scheduling alternatives, transportation, and other factors, such as spending less unsupervised time at home.</p> <p>The questionnaire contained the following open-response questions:</p> <ul style="list-style-type: none">• "Do you offer classes that students can elect to take before the delayed school start time (sometimes called "zero-hour classes)?"• "Did your district 'flip' elementary and high school start times?"• "Would you recommend that other districts pursue delaying a school start time?"

Results and Discussion

Each statement received a “Barrier Percentage” or “Facilitating Factor Percentage” score, which was the percent of adults in each category that perceived the statement as a significant, moderate, or minor factor in discouraging or encouraging implementing the delayed start times.

Among the most cited perceived barriers were a tiered bus system (in which one bus serves several schools), school athletes missing more afternoon classes, and less time after school for athletics. The most cited facilitating factors were school administrator involvement in the decision-making process and sleep education for family members and school administrators.

Results from this analysis are in the tables:

Distribution of Top 10 Perceived Barriers for School Start Time Delay	
Barrier	Barrier Percentage
Athletes missing more afternoon classes to attend or travel to games	84.2
Less time after school for athletic activities	80.7
Family members resistant to change schedule	78.9
Unavailability of adolescents to provide after-school care for siblings	75.6
Teachers resistant to change schedule	74.8
Use of a tiered school bus transportation system	71.1
Elementary students having to wait for bus pickup in the early morning	69.6
Less time for adolescents to work	65.8
Student resistant to changing their schedule	63.5
Increased school transportation costs	58.4

Distribution of Top 10 Facilitating Factors for School Start Time Change	
Facilitating Factor	Facilitating Factor Percentage
Involvement of the teachers in the decision-making process	84.5
Involvement of the school administrators in the decision-making process	84.4
Providing education on adolescent sleep patterns—for students	83.5
Providing education on adolescent sleep patterns—for family members	82.5
Providing education on adolescent sleep patterns—for teachers	81.5
Involvement of the family members in the decision-making process	80.9
Involvement of students in the decision-making process	79.1
Providing education on adolescent sleep patterns—for school administrators	77.1
Ability to schedule elementary start times to maintain bus tier system	74.5
Involvement of support staff in the decision-making process	70.4

Participants found that providing sleep education to fellow administrators, teachers, school staff members, families, and students, and including them in the decision-making process positively facilitated the implementation of delayed school start times. Perceived barriers to implementation may be overcome with support from stakeholders and planning committees.

When the 116 participants were asked if they would recommend a delayed school start time, 69% (80 participants) said they would recommend that other districts pursue a delayed start time; 19.8% (23 participants) said they would not recommend a delayed start time; and 11.2% (13 participants) provided no answer.

Adapted from *Journal of School Health*.

Fitzpatrick, J.M., Silva, G.E., Vana, K.D. (2020). Perceived barriers and facilitating factors in implementing delayed school start times to improve adolescent sleep patterns. *Journal of School Health*, 91(2), 94-101. <https://doi.org/10.1111/josh.12983>.

Source C

Introduction
<p>The American Academy of Pediatrics developed the following statement on school start times. A committee of scientists and practitioners who specialize in pediatric health issues intended the statement to offer advice on best practices for school start times.</p>
Statement
<p>The American Academy of Pediatrics recognizes that insufficient sleep is an important issue for adolescents. While several factors may influence students' ability to get enough sleep, evidence strongly suggests that earlier school start times contribute to sleep deprivation. The American Academy of Pediatrics strongly supports efforts to set school start times for middle and high school students in a way that helps them get 8.5 to 9.5 hours of sleep a night to improve physical and mental health, safety, academic performance, and quality of life.</p> <p>Biologically, most adolescents experience a "phase delay" in their sleep-wake cycle when they start going through puberty. As compared to their middle childhood sleep-wake cycle, adolescents experience a shift of up to 2 hours in their sleep-wake cycle, which means they fall asleep later.</p> <p>Insufficient sleep hurts academic performance. One study found that 28% of students reported falling asleep in school at least once a week, and more than 1 in 5 students fell asleep doing homework at least once a week. Many studies show an association between decreased sleep duration and lower academic achievement, as well as higher rates of absenteeism and tardiness and decreased readiness to learn.</p> <p>An increase in anxiety and mood disorders in adolescents has also been linked to poor quality and deprivation of sleep. Other specific health-related effects of sleep loss include increased use of stimulants (e.g., caffeine, prescription medications) to counter the effects of chronic sleepiness on academic performance. Adolescents are also at greater risk of drowsy driving–related crashes because of sleep deprivation.</p> <p>According to the US Department of Education statistics for 2011–2012, approximately 43% of the over 18,000 public high schools in the United States currently have a start time before 8:00 AM.</p> <p>The ongoing debate among school districts in the United States regarding later start times for middle and high schools continues to spark controversy. Perceived barriers to changing school schedules include shorter time for athletic practices and interference with scheduling of games, reduced after-school employment hours for students, challenges in providing child care for younger siblings, adjustments in parent and family schedules, potential safety issues, effects on sleep duration in younger children if elementary school schedules are "flipped" with those of middle/high school students, and the need to make alternative transportation arrangements.</p>

Adapted from American Academy of *Pediatrics*.

Au, R., Carskadon, M., Millman, R., Wolfson, A., Braverman, P.K., Adelman, W.P., Breuner, C.C., Levine, D.A., Marcell, A.V., Murray, P.J., O'Brien, R.F., Devore, C.D., Allison, M., Ancona, R., Barnett, S.E., Gunther, R., Holmes, B., Lamont, J.H., Minier, M., Okamoto, J.K., Wheeler, L.S.M., & Young, T. (Adolescent Sleep Working Group, Committee on Adolescence, Council on School Health) (2014). School start times for adolescents. *Pediatrics*, 134(3), 642–649. <https://doi.org/10.1542/peds.2014-1697>