

2026 年度中京大学大学院入試

* 著作権の都合により、実際の入試問題から出典表記を一部改めています

スポーツ科学研究科 スポーツ科学専攻

博士後期（博士）課程

[前期日程]

一般用

【 外国語：専門英語 】

10時00分～12時00分

[外国語: 専門英語]

問題: 次の下線のある英文(センテンス①～⑩)を和訳しなさい。その際、①の They、④の It が何を指しているのかも明らかにしなさい。

Research Design and Statistical Analysis

Research design and statistical analysis are both based on measurement principles. ①They are so intertwined that it is difficult to discuss one without referring to the other. This book presents statistical techniques that are designed to assist in evaluating data. How the data are collected, which instruments are used, and how the variables are controlled are all part of the research design.

Research is a special technique for solving problems. Identifying the problem is a critical part of research. A problem usually begins with such questions as "I wonder if...," "I wonder why...," or "I wonder what...." If we do not find the answer to the question, then we have a problem to be researched. First, we might ask an expert in the field about the question. ②If the expert knows the answer, our problem is solved (assuming the expert is not wrong!).

If the expert does not know, we might visit the library. If we find the answer in the library, our problem is solved. But when we cannot find the answer by looking in the library or talking to other people, then the only way to solve the problem is to conduct research.

③Many people think of an experiment when they hear the word research, but research is not limited to exploring scientific, experimental design problems. The problem may be solved by historical research, descriptive research, or experimental research. Historical research is a search through records of the past to determine what happened and why. ④It is an attempt to solve present problems by learning from the past. This book does not address historical research; however, many available texts on research design do discuss historical research.

⑤Observational research (or descriptive research) involves describing events or conditions, which the researcher does not actively manipulate. In this type of study, researchers often examine correlations in the data. A common tool of observational research is the survey. The researcher identifies the events or conditions to be described and seeks information from people or other sources by asking questions, often by using a questionnaire. Statistical techniques are used to organize, treat, and present the data from observational research for evaluation and interpretation.

Experimental research is the research process that involves manipulating and controlling events or variables to solve a problem. ⑥Experimental research puts researchers in the strongest position to make cause—effect inferences from the data. The remainder of this chapter discusses research of the experimental design type. Experimental design is a process that involves manipulating and controlling certain events or conditions to solve a problem.

To begin your research, you need a plan. The research design is the plan that sets out the manner in which the data will be collected and analyzed. ⑦Often the plan calls for subproblems to be solved first or for pilot work (preliminary data collection) to be conducted to determine the feasibility of the research design. A common error of beginning researchers is to jump into data collection before doing adequate planning and pilot work.

If the problem has not been solved after the problem has been identified and the library search has been completed, we are ready to make a hypothesis. ⑧A hypothesis is an educated guess or a logical assumption that is based on prior research or known facts and that can be tested by the experimental design. The hypothesis must be stated in such a way that statistical analysis can be performed on the data to determine the probability (or odds) of obtaining the given results if the hypothesis is true.

Hypothesis Testing

⑨The hypothesis that prompts the research is called the research hypothesis, or the alternative

hypothesis, and is symbolized by H_1 . It usually predicts relationships or differences between or among groups of subjects. After all, if we didn't believe that relationships or differences existed, then we would probably not perform the experiment in the first place. ⑩However, H_1 is not the hypothesis that is normally tested by statistical analysis.

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