

An Exploratory Study of Research Ethics Training and Ethical Validity

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Abstract

Purpose: The effectiveness of research ethics education in enabling researchers to think and judge ethically in conducting research. It is a fundamental solution for the establishment of research ethics in the research field, not only for current researchers but also for the next generation. It measured various variables related to ethics that can lead to ethical behavior through a quasi-experimental design to support the reliability of the study. **Research Design, data and methodology:** Examine prior research on research ethics and explore current research ethics education and practice. It aims to study how to effectively implement and validate specific aspects of research ethics. To investigate, study, and validate research ethics education and research ethics systems. **Results:** It is defined as the effectiveness or value of training as measured by changes in knowledge and behavior in reaction, learning, behavior, and outcome evaluations measured after learning. **Conclusions:** For the effectiveness of research ethics education, various support measures need to be mobilized for the spread and establishment of research ethics education. Formalized and continuous research ethics education is needed. It is important that the knowledge acquired through long-term and consistent research ethics training is transferred to ethical behavior in the research field.

Keywords : Research Ethics, Research Ethics Training, Ethical Validity, Research Ethics Principles

JEL Classification Code: C35, M31, M39

1. Introduction

As we become a knowledge-based society, knowledge and technological innovation are emerging as key factors of national competitiveness and are recognized as key drivers of sustainable growth (Husband, 2020).

R&D activities have resulted in publications in world-class journals and international patent applications. It has also raised its profile internationally. Despite the remarkable growth in research, research ethics issues that threaten the quality of research, such as plagiarism, embezzlement of research funds, and contested authorship, continue to appear. These are issues that appear globally in a research society with high competition for research.

As the ripple effect of research results on society grows, the public's demand for establishing and observing research ethics is also growing (Kang & Hwang, 2023).

To overcome this, various efforts are being made to establish research ethics, such as enacting research ethics regulations and guidelines, spreading research ethics culture, and implementing research ethics education. In particular, research ethics education encompasses the principles and behaviors that researchers should follow while conducting research (Bryman & Bell, 2019). From the preparation of research to the final publication, researchers are required to acquire the required behavioral norms. It is a fundamental solution for the establishment of research ethics in the research field, not only for current

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researchers but also for the next generation. As such, not only is research ethics education important, but researchers themselves can only be recognized for their value through creative and honest research. We recognize the need for research ethics education due to our responsibility as intellectuals who contribute to academic development and humanity (Drolet et al., 2022).

In the early days of research ethics education, one-time trainings such as seminars, special lectures, and workshops were held sporadically. Even these trainings were not conducted continuously, and many people questioned the effectiveness of research ethics education. To improve this, some research institutes and universities have developed their own training programs or guidebooks for regular research ethics education (Hwang et al., 2014).

The government has been promoting the mandatory completion of research ethics education as part of the Research Ethics Activity Support Project, and researchers participating in research and development projects are required to take research ethics education before conducting research, making research ethics education more systematic and professional (Gibson et al., 2013). However, it is time to impose research ethics training as a mandatory requirement for conducting national research and development projects in Korea. The effectiveness of research ethics education in enabling researchers to think and judge ethically in conducting research (Kang & Hwang, 2023).

It is not known whether research ethics education plays a role in enabling researchers to think and judge ethically in conducting research and lead to correct behavior. Therefore, this study aimed to measure the ethical effectiveness of research ethics education on science and technology personnel to establish research integrity in the research field, and to make recommendations for improvement and institutional implications (Kang & Hwang, 2023). In particular, there is a lack of research on the effectiveness of research ethics education for researchers participating in national research and development projects in Korea.

As a way to prove its validity, it measured various variables related to ethics that can lead to ethical behavior through a quasi-experimental design to support the reliability of the study.

2. Literature Reviews

2.1. The Importance of Research Ethics Training

Western countries, including North America and

Europe, have been focusing on research ethics and research integrity since the major research misconduct scandals of two decades ago, and have been working on measures to improve them (Judge et al., 1997).

In the early days of the debate, there was often reluctance or skepticism about institutional prescriptions, citing reasons such as infringement on the principles of research freedom and self-regulation of the scientific community. In the wake of the research misconduct scandals, the U.S. federal government, which is responsible for overseeing the use of research funds, has become actively involved in identifying less-than-adequate research practices that fall below the standards of good research (Luthans et al., 2004).

In the process, the umbrella term for misconduct by scientists changed from “research fraud” to “research misconduct”. The term “research misconduct” was initially met with resistance from the scientific community, but gradually FFP became the standard shorthand for fabrication, falsification, and plagiarism (Chen et al., 2001).

In recent years, the culture of research ethics has spread beyond the reporting and investigation of research misconduct to encourage responsible conduct of research (RCR) or good research practice (GRP), which can ensure honesty, accuracy, efficiency, and objectivity (Youn et al., 2015).

Among the various activities to establish research ethics, such as establishing guidelines, enacting regulations, and providing training, research ethics education provides researchers with the right direction. It is considered the most positive research ethics activity for good research (Dennis et al., 2019). Research ethics training is a way to formalize and systematize the apprenticeship-style teaching that has been the norm. Formal research ethics training allows students to acquire relevant knowledge in a systematic way and to learn how to deal with conflict situations so that they can make rational ethical judgments (Novak, 2014).

2.2. The Research Ethics Principles

The nature of social science research means that research traditions based on research practices that were once led by minority researchers are no longer honored.

It has become increasingly important for researchers to recognize and practice the ethical norms and standards that are fundamentally required of them.

Spreitzer (1995) recognized the importance of research ethics and proposed 'Principles for ethical conduct in research' as a concrete action plan. research)' as a concrete action plan.

Table 1: Research Ethics Principles

Research Ethics Principles	
Honesty	Researchers should report honestly about data or findings, methods and procedures, publication status, contributions of participants, and potential conflicts of interest. Data must not be falsified, altered, or misrepresented in papers, reports, or grant applications. Be objective, unbiased, and honest in all aspects of the research process.
Objectivity	Designing experiments, analyzing and interpreting data, and reviewing papers, research grant applications, expert testimony, etc. to obtain objective validity.
Openness	Researchers should share data, results, methods, ideas, techniques, tools, materials, and more. Researchers should accept criticism and be open to new ideas.
Confidentiality	Ensure the security of thesis reviews and grant proposals, corporate and military secrets, and the personal records of patients or human subjects in research.
Carefulness	Researchers must be vigilant to ensure that they and their colleagues do not make errors in the conduct of their research or in the presentation of their results.

Source: Bryman & Bell (2019), Husband (2020)

There are various activities to establish research ethics, including establishing guidelines, enacting regulations, and conducting training. Research ethics training is considered to be the most positive research ethics activity to guide researchers in the right direction and ensure good research (Sutton & Austin, 2015).

3. Ethical Validity of Research Ethics Training

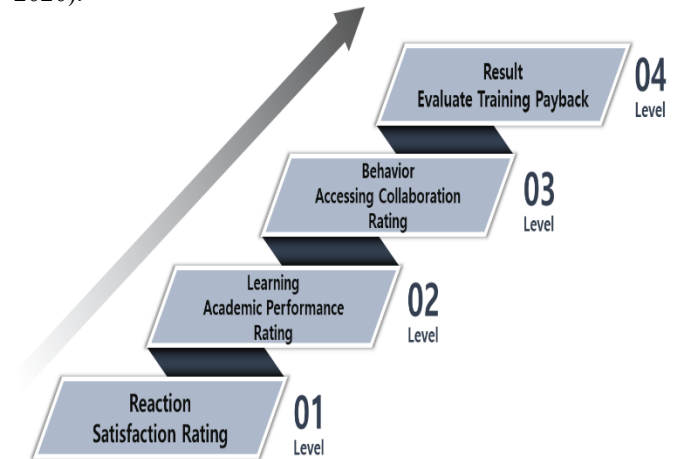
Ethical knowledge is the knowledge aspect of the educational outcomes that can be acquired through research ethics training. The ethical knowledge acquired by individuals affects their ethical identity and ethical attention. Ethical identity is developed when ethical understanding and knowledge are synchronized to become part of the self. Ethical attention can be developed based on the degree of awareness and receptivity to ethical information (Steger et al., 2012).

The nature of social science research means that research traditions based on research practices that were once led by minority researchers are no longer respected.

It has become increasingly important for researchers to recognize and practice the ethical norms and standards that are fundamentally required of them (Vainio, 2013).

The degree of understanding of ethical knowledge through research ethics education can be explained by

Kirkpatrick's four-level evaluation model. Kirkpatrick's four-level model is an effective model for measuring effectiveness given the e-learning format. Kirkpatrick's four-level model is accepted as the most commonly used model for measuring educational effectiveness (Husband, 2020).



Source: Drolet et al.(2022)

Figure 1: Kirkpatrick's Four Level Model

It is defined as the effectiveness or value of training as measured by changes in knowledge and behavior in reaction, learning, behavior, and outcome evaluations measured after learning (Bradley & Roberts, 204). It is presented a method to evaluate the performance of training at four levels: reaction, learning, behavior, and result. The contents of each level are shown in Figure 1.

4. Conclusions

It is the increase in basic knowledge, ethical self-importance, ethical confidence, ethical motivation, and ethical significance related to ethics that influences ethical behavior. For the effectiveness of research ethics education, various support measures need to be mobilized for the spread and establishment of research ethics education.

The implications of this exploratory study of the literature are as follows. Formalized and continuous research ethics education is needed. It is important to ensure that the knowledge acquired through long-term and consistent research ethics training is transferred to ethical behavior in the research field. Measures are needed to increase research ethics knowledge and ethical behavior through continuous research ethics education.

The ethical courage to voice one's opinion on what is ethically right and proper is difficult to be expressed until an ethical culture is established. Research ethics education

is necessary to improve research ethics awareness and establish a research ethics culture.

In the long run, research ethics training needs to be institutionalized as a mandatory requirement for many researchers to benefit from it. Systematic formal education is necessary to establish a research ethics culture that encourages honest research in the science and technology community, which has been developing rapidly in recent years. Expanding mandatory research ethics training to researchers participating in some national R&D projects should be supported.

Further review and improvement of the curriculum is needed to ensure that appropriate training content and methods are selected to improve researcher ethics.

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