

RESEARCH ROADMAP

Based on student research analysis, Sport Science Study Program student research topics can be seen in the table as follows.

Table 1. Sport Science Study Program Student Research Topics

| No. | Sport Science Study Program |
|-----|--|
| 1 | Biomechanics |
| 2 | badminton |
| 3 | Covid 19 |
| 4 | Philosophy of Sports |
| 5 | Sports Physiology |
| 6 | Sports Nutrition |
| 7 | Physical Condition |
| 8 | Olarhaga Management |
| 9 | Training Methodology |
| 10 | Adaptive Sports |
| 11 | Recreational Sports |
| 12 | Traditional Sports |
| 13 | Early Childhood Sports |
| 14 | Sports Injury Prevention And Treatment |
| 15 | Motor Development |
| 16 | Sports Psychology |
| 17 | football |
| 18 | Sociology of Sport |
| 19 | Match Statistics |
| 20 | Tests And Measurements |

Sport Science Study Program is the major that has the most research topics compared to other majors. The topics studied by students of the Department of Health and Recreation Education as many as 20 topics, namely: Biomechanics, Badminton, Covid 19, Sports Philosophy, Sports Physiology, Sports Nutrition, Physical Conditions, Sports Management, Coaching Methodology, Adaptive Sports, Recreational Sports, Traditional Sports, Early Childhood Sports, Prevention and Treatment of Sports Injuries, Motor Development, Sports Psychology, Football, Sports Sociology, Match Statistics, and Tests And Measurements.

In addition to the research topic, analysis of student thesis is done to find out the type of research method used. The results of the analysis can be explained as follows.

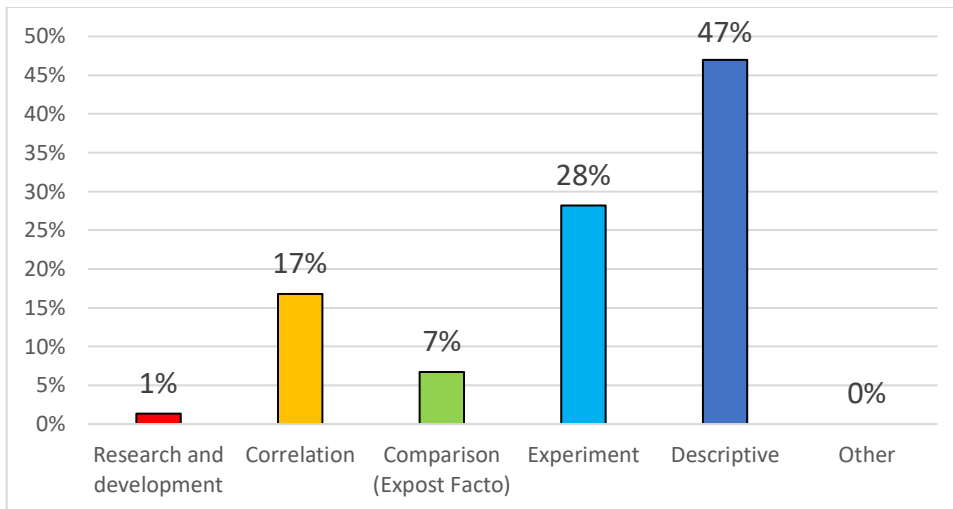


Figure 1. Types of Student Research Methods

Based on figure 1 above, it can be explained that descriptive research is the most conducted by students. Very little research is done using research and development methods. Whereas this type of research is important so that innovations in sports can be realized.

Furthermore, the analysis is conducted based on the type of science studied by students in accordance with the major and minor profiles of graduates according to the field of study. The results of the analysis can be seen in the following figure.

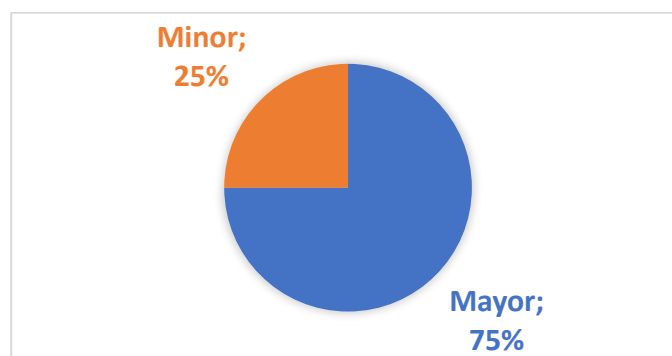


Figure 2. Research Topics By Course Graduate Profile

Based on figure 3.4 above, it can be explained that as much as 75% of the research conducted by students has been in accordance with the profile of major majors. While as much as the remaining 25% did research for minor profiles of majors. This finding is encouraging because major research for major profiles still dominates in every major.

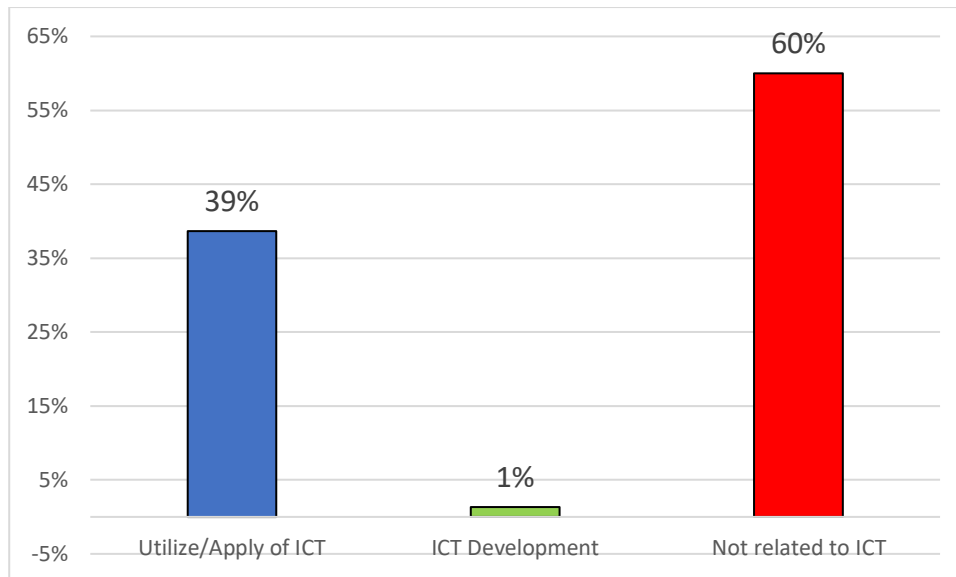


Figure 3. ICT-Related Research

Based on figure 3.5 above, it can be explained that very few research students conduct research to develop information, communication, and technology (1%). A total of 39% of student research only utilizes ICT in its research process. And at most, 60% of student research is not related to ICT. The move to adopt technology into sports is widely done in the form of material development, equipment design, and clothing that have a major influence on sports. The term Engineering of Sport became a trend in conferences from 2002 to 2012 in encouraging the development of better, faster, and stronger equipment, in helping athletes in developing performance. Sensor technology plays an important role in the context of sports, to assess and develop new equipment in helping athletes' performance and reducing the risk of injury (James & Petrone, 2016).

In this section will be discussed about the identification of research roadmap and the form of research roadmap design.

A. Identify Research Roadmap Design

The identification of the roadmap design aims to explain the mindset of roadmap preparation. Identification is done on various things in the table as follows.

Table 2. Identification of FIO Research Roadmap Design

| No. | Items | Explanation |
|-----|---|---|
| 1. | Scope of research roadmap: | Research in the areas of educational, achievement, and recreational sports, as well as disability sports. |
| 2 | Faculty's flagship research by University | <ol style="list-style-type: none"> 1. Sports Education: Adaptive physical education 2. Sports Coaching Education: Adaptive sports training 3. Health and Recreation Education: Disability Participation in Sports |
| 3 | Faculty's excellent research by major | <ol style="list-style-type: none"> 1. Sports Education: Modification and development in physical learning 2. Sports Coaching Education: Development of prototypes/training applications 3. Health and Recreation Education: Sports Tourism Development |
| 4 | purpose | It is the description and implementation of the first mission statement of the Faculty of Sports Sciences on research in the field of sports that is competitive and sportsmanship in building Indonesia. Through this roadmap is expected to help FIO achieve this goal within 5 years. |
| 5 | FIO Issues | <p>Internal problems: Over the next 5 years at the faculty and department level, there is no research tree to develop into a roadmap. In addition, it is felt that lecturers have other interests in developing their skills outside of research, it is also exacerbated by the presence of lecturers' expertise that is not in accordance with the vision of the mission of the faculty and / or majors. Based on the data of research implementation, lecturers are less able to collaborate, especially with lecturers outside the sport to conduct multi, inter, and trans-disciplinary research.</p> <p>External problems: More and more problems in the field of sports science are constantly evolving with dynamic such as declining national sports achievement, low participation in sports both children and</p> |

| No. | Items | Explanation |
|-----|-----------------------------|---|
| | | adults, limited modification of teacher learning penjas become problems that need to be solved by the faculty through the research roadmap. |
| 6 | Resources | |
| | Tbsp | Teaching staff with education at the strata level S3, S2 and functional positions ranging from Professor to faculty. In addition, supported by staff employees who are educated to hold the top until master. |
| | Source of Funds | Sources of funds from the Higher Education, State Institutions, Private Institutions, and Internal Funds Unesa. |
| | Facilities & Infrastructure | Supported by licensed lecture facilities and infrastructure at Unesa and Sports Laboratory. |
| 9 | Market trend | <ul style="list-style-type: none"> • Research in the field of physical education and sports in schools and the problems that are in it. • Research in the field of sports achievement at the regional, national, and international levels. • Research in the field of sports tourism and sports industry as well as the problem of physical activity of the community. |
| 10 | System design | Research can use development research design, laboratory or field research, as well as the application / application of basic research in the field of sports. In addition, lecturers are exempted using research methods relevant to the needs of each research conducted. |
| 11 | Achievement strategy | <ul style="list-style-type: none"> - Determination of umbrella research - Initial research in accordance with umbrella research - Further research - Periodic monitoring and evaluation - Research collaboration |
| 12 | Partner Institutions | <ul style="list-style-type: none"> - Ministry of Youth and Sports - Ministry of Health - Ministry of Education and Culture - Provincial & Municipal Culture and Tourism Office - KONI Province & City |

| No. | Items | Explanation |
|-----|--------|---|
| | | <ul style="list-style-type: none"> - Private Institutions - Provincial & Municipal Youth and Sports Office - Provincial & Municipal Health Office - Provincial & Municipal Education Office - Indonesian Community Recreation Sports Committee - Parent Of International, National and Regional Sports Organizations - Community Sports - National Paralympic Committee (NOC) Provinces & Cities - Disability Community - School with disabilities - Gymnastics Workshop - Sports Physiotherapy Clinic - Sports Psychology Clinic - Puskesmas - Sports Club - Fitness Club - Fitness Center - Sports equipment industry - Owner of Sports Wristband - Owners of Recreational Sports - Owner of sports tourism industry - Sports Book Publisher - Indonesian Anti-Doping Agency (LADI) - Sports Journal Manager - Print and digital media in sports - MGMP - Sports Museum - Sports-based app developer - Sport Clinic - Fitness Association - Association of Study Programs - Recreational Sports Association |
| 13 | target | <ul style="list-style-type: none"> - Umbrella research topics - Preliminary research - Further research - Research documentation - Scientific Publications - Improved citation |

B. Roadmap for Excellent Research

Rector of Unesa in 2019 through a decree establishing three excellent researches unesa, namely:(1) excellent research in the Field of Disability; (2) Sports Science; and (3) Arts and Culture. Furthermore, these three excellent research must be supported by all lines of research in order to focus the objectives of these three excellent researches can be achieved. Therefore, here is the position of the Sport Science Study Program research roadmap design in support of the three excellent researches of Unesa.

Table 3. FIO Research Roadmap Position on Unesa's Flagship Research

| No. | Unesa's Excellent Research | Sport Science Study Progam |
|------------|-----------------------------------|--|
| 1. | Disability field | Adaptive physical education, adaptive sports training, and disability participation in sports |
| 2. | Sports | <ul style="list-style-type: none">- Development of sports tourism- Exploration of recreational sports- Sports industry development- Physical activity in the community- Sports product development |