

Exploring Coaching Competencies in Field Mechanism Operations Training Programs in Malaysia

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Abstract

This study explores coaching competencies in farm mechanization operations training programs in Malaysia, where mechanization plays a pivotal role in enhancing agricultural productivity and efficiency. The proficiency of trainers in technical, pedagogical, and interpersonal skills is crucial for equipping farm workers with the necessary knowledge to operate machinery safely and effectively. Using a qualitative case study design, this research gathers data through semi-structured interviews and field observations of trainers at a specialized training centre dedicated to farm mechanization in Malaysia's agricultural sector. The findings highlight that effective coaching competencies encompass advanced technical knowledge, adaptability in teaching methods, and strong interpersonal skills that facilitate positive interactions with trainees. Trainers face challenges such as limited training resources and diverse skill levels among participants, underscoring the need for enhanced training equipment and continuous professional development for coaches. This study emphasizes the importance of improving coaching competencies to increase the effectiveness of farm mechanization training programs, with the potential to boost agricultural output in Malaysia. The proposed follow-up study will assess the long-term impact of these courses on practical farming practices.

Keywords: Agricultural, Coaching, Farm, Training, Qualitative, Profesional Development

Introduction

Agriculture is a cornerstone of Malaysia's economy, significantly contributing to the nation's gross domestic product and employment. However, the sector faces rapid changes driven by technological advancements and mechanization, which are vital for addressing labour shortages, rising production costs, and the need for improved efficiency. Mechanization efforts, particularly in the oil palm, rubber, and food crop sectors, aim to boost productivity,

reduce dependence on manual labour, and enhance sustainability (Abdullah & Hashim, 2022). Achieving these goals requires well-trained farm workers capable of operating machinery efficiently and safely, thereby maximizing the benefits of mechanization (Clark & Turner, 2022).

The training center provides essential resources and support for farm mechanization courses. Coaching skills are vital in bridging the gap between technological advancements and their practical application in agriculture. Effective coaching in farm mechanization goes beyond technical instruction, encompassing strong communication and teaching skills to ensure participants can understand and apply knowledge in real-world contexts. For example, trainers must simplify complex technical concepts, demonstrate the use of machinery for specific agricultural tasks, and address participants' questions (Clarkson & Patel, 2021). Comprehensive coaching not only ensures proper machinery operation but also cultivates a culture of innovation and continuous learning among farm workers (Brookfield, 2021).

Research shows that effective coaching significantly influences the success of mechanization efforts on farms. High-quality coaching improves agricultural yields, reduces production costs, and enhances operational efficiency. Additionally, it minimizes risks associated with improper machinery use, such as accidents or equipment damage. These benefits are particularly vital in addressing Malaysia's ongoing labour shortages in the agricultural sector (Ismail, Rahim, & Mustafa, 2023). This study focuses on coaching competencies in field mechanization operations in Malaysia, emphasizing the skills required to enhance the effectiveness of training programs. According to Abdullah, Zulkifli, and Jamal (2021), the quality of education and training in technical fields is closely tied to the skills and competencies of coaches. In Malaysia, mastering the latest field mechanization technologies demands coaches who possess both technical expertise and pedagogical skills to effectively apply their knowledge in practical settings. Improving coaching competencies not only elevates the quality of training courses but also better prepares participants for industry challenges (Cheng & Leung, 2021).

Despite its importance, fostering coaching competencies for farm mechanization in Malaysia faces several challenges. These include a shortage of skilled and experienced coaches with both technical and teaching capabilities and limited access to modern machinery and simulation tools (Johnson, Smith, & Lee, 2020). These gaps hinder the quality of training programs and slow the adoption of advanced mechanization practices, ultimately affecting the sector's productivity and competitiveness (Jones, 2020).

Moreover, Malaysia faces significant challenges in fostering coaching competencies for farm mechanization. One of the primary obstacles is the shortage of skilled and experienced coaches who possess both technical expertise and teaching abilities. Additionally, the lack of access to up-to-date technological resources, such as modern machinery and simulation tools, hampers the effectiveness of training programs (Lee & Tan, 2021). These gaps not only limit the quality of training but also hinder the adoption of advanced mechanization practices, ultimately affecting the sector's overall productivity and competitiveness. This study aims to evaluate the long-term effectiveness of these courses in terms of their impact on real-world farming practices. In conclusion, this research plays an important role in improving the competence of trainers in field mechanism operation courses. With thorough research, trainers can identify the skills needed, improve their teaching techniques, and ensure that the

courses provided meet the needs of the industry and produce better quality results. Research also ensures that the training system in Malaysia is not only relevant but also globally competitive.

Concept of Coaching Competencies in Field Mechanism Operations

Coaching competences in field mechanism operations is an important concept that combines coaching techniques with technical knowledge to improve the efficacy and productivity of field operations teams. Coaching skills are essential in industries that rely on complex mechanical systems, such as oil and gas, manufacturing, and construction, to improve operational efficiency, advance safety, and develop technical skills among employees. This talk will look into coaching competencies in field operations, emphasizing the value of technical knowledge, communication skills, safety awareness, ongoing education, and teamwork.

According to Grant and Hartley (2013), coaching is a process that aims to improve development and performance by providing personalized advice, feedback, and support. In field mechanism operations, coaching transcends conventional skills training by including situational learning and ongoing support, thus enhancing individual and team competency. Technical competency, communication and instructional skills, safety awareness, performance monitoring, and team development are all critical coaching competencies in field operations (Jones, 2020). Technical proficiency is an important component of coaching competencies in field mechanism operations because it allows coaches to provide practical training on how to operate and maintain complex machinery. Coaches must understand field mechanisms like diagnostics, troubleshooting, and repair in order to effectively support and lead their team members. In mechanical operations, successfully conveying technical expertise to the team is critical, as workers may meet a variety of difficulties in the field that require quick decision making and problem-solving (Jones, 2020).

A crucial competence in coaching field operations is communication. Effective communication improves information transmission, encourages collaboration, and eliminates misconceptions in the domain. Coaches must use verbal and nonverbal communication methods, such as demonstrations and visual aids, to effectively communicate complex information to field staff (Clarkson & Patel, 2021). Active listening is essential because it enables coaches to identify areas where their team may require additional assistance or advice (Grant and Hartley, 2013). Communication in field operations must be tailored to team members' various levels of experience and learning styles, allowing for personalized coaching strategies that improve learning outcomes (Smith and Roberts, 2019). Given the dangers of many outdoor jobs, safety awareness is an important component of coaching competencies. Wills and Turner (2018) assert that safety culture in field operations is enhanced when coaches' priorities compliance with safety rules and assist team members in identifying and alleviating risks. Coaches must conduct emergency response protocol training to ensure that participants are prepared to deal with mechanical breakdowns and unanticipated catastrophes (Jones, 2020). Coaches reduce incidents and improve overall operational efficiency by cultivating a safety culture.

Performance coaching is critical in field mechanism operations, where constant improvement is key for success. Performance coaching emphasizes the enhancement of individual talents by practical training, the establishment of attainable objectives, and the provision of

consistent feedback (Clarkson & Patel, 2021). Coaches assist field troops in identifying skill deficiencies, providing specialized training, and directing them towards operational objectives. These activities encourage a culture of continuous learning, which boosts productivity and employee satisfaction (Wills and Turner, 2018). Feedback loops and debriefing sessions are essential for team members to reflect on their performance and gain insight from their experiences. Finally, teamwork and motivation are essential skills in the operation of coaching systems. Effective coaching fosters collaboration and trust among field personnel, resulting in a culture of sharing information and expertise. Coaches must motivate their teams by acknowledging their accomplishments, addressing challenges, and aiding (Jones, 2020). Motivation is essential in challenging field environments where resilience and adaptation are required to overcome operational barriers (Smith & Roberts, 2019).

To summarize, coaching competencies in field mechanism operations include fundamental skills and abilities required to improve team performance, ensure safety, and develop technical understanding. Coaches in this context must have technical knowledge, effective communication skills, a safety mindset, and the ability to encourage ongoing learning and collaboration. By combining these characteristics, coaches can improve the efficiency and productivity of field operations teams while also fostering a culture of safety and collaboration. As industries change and mechanical operations grow more complex, effective coaching in mechanism operations will remain critical to organizational success.

Coaching Effectiveness in Agriculture

According to studies on coaching in the agricultural sector, qualified trainers are required to educate field workers on the appropriate usage of machines. Rahman et al. (2023) discovered that the coach's technical knowledge, communication skills, and motivating qualities all had a significant impact on coaching effectiveness. This study demonstrates that organized training that employs practical teaching methods and simulations is more effective in improving participants' abilities in the safe and efficient management of agricultural mechanization (Rahman et al., 2023). According to research by Abdullah and Hashim (2022), coaching strategies that involve active learning approaches, such as hands-on and field training, have been shown to be more successful in increasing farm worker confidence and efficiency. The practical training provides an opportunity for participants to apply knowledge in real-life situations, thus improving their understanding and skills in the use of farm mechanization (Abdullah & Hashim, 2022).

A study by Lee and Tan (2021) identified several challenges in agriculture sector coaching in Malaysia. Among them is the lack of qualified trainers and the incompatibility of training materials with the actual farm situation. Additionally, Lee and Tan noted that there is a gap in the provision of the latest modern equipment, which makes it difficult for trainers to train participants with the latest technology that is being introduced in farm mechanization (Lee & Tan, 2021). Zulkifli et al. (2023) found that good coaching is critical for the development of Malaysian agriculture. Coaching helps farmers use machinery more successfully, which improves agricultural production and lowers operating expenses. In this study, Zulkifli et al. emphasized that coaching courses should include the most recent information on the application of smart agriculture technology and practices to ensure that agricultural transformation is effective.

The use of technology such as simulation and computer-aided training is also getting more attention to improve the effectiveness of coaching training. A study by Ramli and Nor (2022) showed that simulation technology can provide participants with a near-real experience without real risk, which allows participants to be more courageous to learn and make mistakes. Aside to that, in a study by Tan et al. (2022), there is an increasing need for trainers in the mechanical and field operations sectors to stay abreast of industry developments. Providing ongoing courses and regularly assessing the competencies of coaches is essential to keep them up to date with the latest technology in the field. Consequently, participants showed enhancements in technical capabilities and self-assurance following their attendance in courses employing this methodology (Ramli & Nor, 2022). Ismail et al. (2023) discovered a favourable correlation between coaching skill and enhanced production in the agriculture sector. They stated that trainers who have in-depth knowledge of mechanization and competence in imparting such knowledge to farm workers can improve the efficiency of the use of machinery and agricultural products (Ismail et al., 2023). This literature review shows that coaching competence is a critical factor in ensuring the effectiveness of training for the use of farm mechanization, which can ultimately contribute to the progress of the agricultural sector in Malaysia.

Existing research focuses on the importance of coaching in farm mechanization operations courses, however there is a lack of research on the effectiveness of certain coaching techniques in the agricultural context in Malaysia. For example, a study by Abdullah and Hashim (2022) emphasized the importance of a *hands-on* learning approach, but no study compared this approach with other techniques such as simulated learning or project-based learning to determine the most effective technique (Abdullah & Hashim, 2022). Many studies have focused on the technical aspects of coaching ability, but few have highlighted the importance of interpersonal skills in establishing meaningful connections with participants. Lee and Tan (2021) argue that a coach's communication and empathy skills have a significant impact on participant motivation; however, this domain is understudied, particularly in terms of how to improve these traits through formal teaching. Although simulation technology and the Internet of Things (IoT) are acknowledged as critical components for improving course efficacy, research on their application in agricultural operations training in Malaysia is limited. According to Zulkifli et al. (2023), coaches who use simulation technology may improve participants' comprehension; however, there has been little research on the challenges and opportunities associated with incorporating modern technology into these courses.

There is a gap in the assessment of coaching success from the perspective of long-term results. Most studies only assessed the effects of courses in the short term, without measuring the extent to which the training impacted farm productivity or workers' skills over the longer term (Rahman et al., 2023). As a result, further study is needed to assess the long-term efficacy and socioeconomic impact of farm mechanization training. The effect of culture on the coaching process is similarly under-emphasized in Malaysia. Lee and Tan (2021) showed how cultural differences between coaches and participants might impact on the efficacy of communication and learning; however, thorough research on the effective management of these cultural aspects is still lacking. This is especially important in Malaysia's multi-ethnic society, where coaching approaches may need to be modified to meet the needs of different cultures.

Most studies focused on experienced trainers, but fewer studies on trainers who were new or inexperienced in farm mechanization operations courses. Ramli and Nor (2022) found that the coach's experience level plays a big role in the effectiveness of training, yet not much attention has been paid to how new coaches can be supported or trained to achieve a higher level of competence in a short time (Ramli & Nor, 2022). Economic considerations affecting participation in agricultural mechanization courses represent an additional study gap. Ismail et al. (2023) highlights that financial assistance, and incentives can enhance participation in these courses; nevertheless, there is insufficient research about the cost implications and advantages of the courses for participants, particularly smallholders. More research is needed to determine the impact of financial assistance or subsidies on the effectiveness and participation in these training programs.

Theoretical Framework

Adult learning theory, social constructivism, and the GROW coaching model serve as the theoretical foundation for investigating coaching competencies in farm mechanization operations courses in Malaysia. The GROW model (Whitmore, 1992) offers a systematic framework for coaching, which includes Goal formulation, evaluating existing Reality, examining Options, and determining the Will to act. This paradigm is pertinent for farm mechanization training as it assists participants in establishing explicit learning objectives, evaluating their existing competencies, investigating training alternatives, and committing them to action. Recent research suggests that the GROW model can significantly boost learners' confidence and engagement, particularly in practical skill-based instruction (Wilson & McCarthy, 2021). Coaches who use the GROW model can effectively motivate participants by assisting them in developing technical skills and confidence in machine operations, both of which are necessary for the successful deployment of mechanization technologies (Whitmore, 1992; Johnson et al., 2020).

Social constructivism (Vygotsky, 1978) highlights the importance of social interactions and collaboration in the learning process. Effective coaching in farm mechanization involves not only direct instruction but also fostering an environment where participants can collaborate, discuss, and learn from each other's experiences. Coaches play a critical role as facilitators who guide participants through complex tasks and help them develop problem-solving skills through scaffolding and feedback (Vygotsky, 1978). A recent study by Clark and Turner (2022) emphasizes that coaching based on social constructivist principles can significantly enhance learning outcomes by encouraging active engagement and peer-to-peer learning, which is especially effective in diverse training groups with varying levels of experience.

Adult Learning Theory (Knowles, 1984) emphasizes the importance of training programs that are tailored to the unique needs of adult learners, who benefit from pragmatic, self-directed, and experiential learning. Farm mechanization education must take into account participants' prior experience and knowledge, with strategies that promote active participation, relevance, and practical application (Knowles, 1984). Brookfield (2021) emphasizes the importance of incorporating self-directed learning components into adult training programs to improve skill retention and practical application. This type of farm mechanization enables participants to immediately apply training content to their daily agricultural tasks, improving comprehension and performance (Knowles, 1984; Brookfield, 2021).

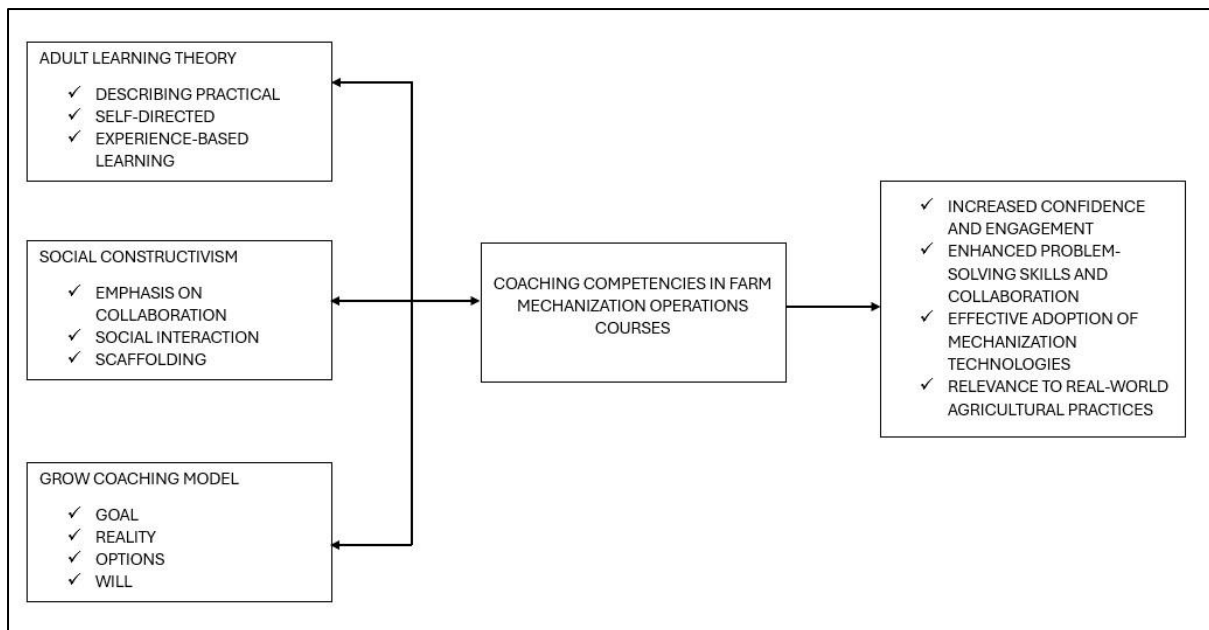


Figure 1: Theoretical Framework of Coaching Competencies in Field Mechanism Operations Courses

These theoretical approaches collectively offer a robust foundation for comprehending and improving coaching competencies in farm mechanization courses. By implementing adult learning concepts, fostering social learning, and utilizing structured coaching frameworks such as GROW, trainers can enhance the effectiveness and results of farm mechanization training.

Conclusion

Enhancing coaching competencies in farm mechanization courses is essential for cultivating a proficient and effective agricultural workforce in Malaysia. By concentrating on the enhancement of technical, pedagogical, and interpersonal competencies, while also addressing resource constraints, we can improve the efficacy of these courses. This will result in increased productivity, safety, and a stronger agricultural industry. Subsequent research must assess the long-term impact of these coaching improvements on farming practices and productivity. More research and pilot training programs should be developed to investigate the value of improved coaching skills. Engagement with stakeholders, such as agricultural institutions, legislators, and industrial partners, is critical to the proposed solutions' effectiveness and sustainability.

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