

## Odoo Software for Human Capital Training to Optimize Enterprise Resource Planning Efficacy for Students

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### Abstract

This research aimed to evaluate efficacy of Odoo Human Capital Training (OHCT) using the Classroom Action Research (CAR) method to optimize Enterprise Resource Planning Efficacy (ERPE) in a minimal contact environment. A purposive sampling technique was used to select forty participants from Psychology and Management study program, and divided into experimental and control groups. The nonequivalent control group design was employed with pretest and posttest, and the experimental group was subjected to a rigorous training program of 4-5 hours of training per day. Meanwhile, ERP-Efficacy Questionnaire (ERP-EQ) was used to measure ERPE, and data analysis was analyzed using the Non-Parametric Friedman Test. The results showed that OHCT can improve ERPE between pretest, posttest, and follow-up ( $\chi^2(2, n = 20) = 27.195, p < .05$ ), compared to the control group ( $\chi^2(2, n = 20) = 4.081, p > .05$ ). Based on these findings, it can be concluded that OHCT can improve ERPE in students.

**Keywords:** Odoo Human Capital Training (OHCT), Enterprise Resource Planning Efficacy (ERPE), Classroom Action Research (CAR), Psychology students, Management students

### Abstrak

Penelitian ini bertujuan menguji efektivitas *Human Capital Training* menggunakan *Software Odoo (Odoo Human Capital Training / OHCT)* dengan Metode *Classroom Action Research (CAR)* untuk optimalisasi *Enterprise Resource Planning Efficacy (ERP-Efficacy / ERPE)* mahasiswa pada situasi minim kontak. Sebanyak empat puluh responden berasal dari Mahasiswa Psikologi dan Manajemen yang dipilih menggunakan Teknik *Purposive Sampling*, dibagi ke dalam kelompok eksperimen dan kontrol masing-masing 20 orang. Penelitian menggunakan desain *nonequivalent control group with pretest and posttest*. Kelompok eksperimen mengikuti pelatihan selama 4 – 5 jam setiap hari selama 2 hari. ERP-Efficacy *Questionnaire (ERP-EQ)* digunakan untuk mengukur ERPE. Analisis data menggunakan Non-Parametric Uji Friedman yang menunjukkan bahwa OHCT dapat meningkatkan ERPE antara prates, pascates dan tindak lanjut ( $\chi^2(2, n = 20) = 27.195, p < .05$ ), dibandingkan kelompok kontrol ( $\chi^2(2, n = 20) = 4.081, p > .05$ ). Kesimpulan penelitian ini adalah OHCT dapat meningkatkan ERPE pada mahasiswa.

**Kata Kunci:** pelatihan *odoo human capital*, *enterprise resource planning efficacy (erp-efficacy)*, penelitian tindakan kelas, mahasiswa psikologi, mahasiswa manajemen

### Introduction

In the contemporary industrial landscape, college graduates are expected to possess a multifaceted skillset. Companies seek out potential candidates with a holistic approach, considering their cognitive abilities, work attitude, and personality traits. However, these proficiencies cannot be acquired instantly since continuous and consistent development is required from both the university and the individual. During the National Webinar on Merdeka Campus-

Merdeka Belajar (LLDIKTI5, 2021), Prof. Dr. Aris Junaidi, the Director of Learning and Student Affairs at the Directorate General of Education and Culture, presented on the competencies to be acquired by students in the 21st century. These can be divided into three categories, namely basic literacy, competencies, and character. Basic literacy comprises six aspects, which include numeracy, science, information, financial, and cultural and citizenship literacies.

One of the aspects of basic literacy to be mastered is the skill of using information technology. This includes the use of computers in companies, which is necessary to support employees or individuals to exchange information quickly (HIMPSI, 2016). Furthermore, technology is developed in the industrial world to support company productivity. The effectiveness of a company depends on technology aspects, Human Resource Development (HRD), management systems, and overall employee effectiveness assessments (Cummings & Worley, 2015).

Many systems have been used by the industry to improve business processes. Meanwhile, one information technology used in companies is Enterprise Resource Planning (ERP) System. According to Brooks (in Mahraz et al., 2019), ERP system, also known as Enterprise Information System (EIS), Enterprise-Wide System (EWS), or Enterprise System (ES), is a software designed to unify information systems from all departments into an integrated system and help manage information from the entire company in one database. This software can manage all activities and processes in the company from sales, manufacturing, logistics, production processes, and accounting, to HR processes, such as recruitment and selection, performance appraisal, attendance, and employee training and development. In addition, ERP enables companies to combine separate data sources into one, and all processes are summarized in integrated application modules (Monk & Wagner, 2013).

However, before implementing ERP in a company or organization, a survey or identification, and analysis of needs should be conducted (Karman, et al., 2022; Ullah, et al., 2017; Nawaz & Channakeshavalu, 2013). This allows companies to use modules according to their needs and capabilities. One of ERP modules useful in the effectiveness of human resource system is the Human Capital Management (HCM) module. This module is a process of managing the cognitive, affective, and psychomotor potential of

employees, which emphasizes human competency investment functions. The process refers to the recruitment, placement, training, development, leave, job evaluation, and all processes related to human resource in the company. Therefore, ERP modules connected to human resource functions are known as ERP-HCM.

The needs of the company are in line with the target achievement plan of Psychology and Management study program graduates at a university in Yogyakarta. The website of both programs shows that graduates are produced by the university who work as practitioners in the field of HR and can adapt to technology (Universitas Jenderal Achmad Yani Yogyakarta, 2022). According to informal interviews with 10 students from both programs, it was found that 6 lacked comprehension of the HCM process within the company and were not confident in their ability, particularly in using technology or management information systems.

Regarding management information systems, 8 students also expressed a lack of confidence resulting in their inability and anxiety in using ERP-HCM software. It is noteworthy that six of these students were not aware of software before the study. Furthermore, two lecturers have emphasized the importance of increasing efforts in conveying related information used in the HRM process. This was because Psychology and Management study program did not include IT-related content in their basic curriculum. In some universities, ERP-HCM had become an elective course (Human Resource Information System) or inserted as material to a course.

To address the disparity between the requirements of the corporation and the academic sphere, particularly Psychology and Management study program at the university, it is imperative to provide training pertinent to ERP-HCM. The objective is to enhance knowledge and competencies in the use of technology, with a specific focus on management of HCM software. By positively using technology, students can avail

themselves of efficacy learning models and gain access to high-quality opportunities (Nurhikmah, et al., 2021a, 2021b, 2023).

Training provided is an application of human resource management theory. The main objective is to provide students with firsthand experience of the process to be capable of resolving issues. Furthermore, Permana et al. (2021) demonstrated the importance of training teachers in technology utilization since few possess the necessary skills to effectively utilize information technology due to factors such as age and lack of familiarity with technology. Therefore, training or skills in using technology should be given attention, especially to students with the willingness to learn.

Irfani (2015) stated that training in using any type of ERP software is crucial for companies, especially to make users feel comfortable and ready to use the implemented software. The three aspects to be considered when designing training are the logic and concepts of ERP, the features and systems of ERP, and the functional aspects of training. In addition, Odoo Human Capital Training (OHCT) module contains basic material or an introduction to improving concepts and understanding of human capital, ERP, and Odoo, as well as their relationship in the industrial world. The module and explanation from the instructor also provide the features and steps required, starting from creating a database, personal information, recruitment, attendance, and other aspects related to human capital or HR module.

The ability to solve problems can provide a sense of achievement to individuals, which can ultimately enhance self-confidence and increase the chances of achieving success in future endeavors. According to Prahara and Indriani (2019), the skills of an individual are related to the self-belief in their abilities, referred to as self-efficacy by Bandura, an evaluation of the capability of an individual to manage and carry out a task or a series of activities, achieve goals, and overcome obstacles (Bantam et al., 2019). The utilization of technology and the confidence

of employees in their capabilities within a company are two crucial factors that can significantly enhance productivity performance (Sandhi, 2013). In addition, individuals are likely to develop a sense of attachment to their tasks or jobs with enhanced work efficacy (Wahyuni, 2017).

According to Bandura (2016), when individuals do not possess the necessary skills or capability to produce a certain output, they may be reluctant to try or undertake the task. Prahara and Indriani (2019) noted that work efficacy can influence optimistic or pessimistic attitudes, affecting the action displayed at the place of work. These action encompass various aspects such as goal-setting strategies, the degree of effort exerted, outcome expectations, the duration of coping with work stress and challenges, as well as the obstacles encountered while striving to meet environmental demands and attain success.

According to Bandura (2016), continuous technological and information changes are closely related to the research of self-efficacy, which determines the extent an individual believes in their capabilities. In the context of software or technology, the variable describes a perception of capability in using software, information systems, or technology to complete specific tasks. Therefore, ERP-Efficacy (ERPE) is an evaluation of the belief of an individual in their capabilities to operate an ERP software module.

According to Bantam et al. (2019), the aspects of ERPE are magnitude, strength, and generalizability. Magnitude refers to the level of difficulty of the programming language or software and the complexity of ERP module. Strength refers to the level of confidence in the assessment or conviction of individuals to complete their work optimally by using ERP software. Generalizability refers to the evaluation of ERP software limited to specific areas of activity.

Soleh and Vikaliana (2020) found the implementation of SAP (System Application & Product) in Inventory Logistics at PT. Haier Sales Indonesia is recognized for its excellence in process documentation,

ensuring that all data is meticulously recorded and integrated into the system. This leads to faster operations compared to the previous manual process and provides accurate inventory reports. However, the research suggests that to optimize the use of SAP, the company should provide training for its users. Several studies demonstrated that hands-on experience with technology or software in the classroom can boost confidence in future computer use (Girlando & Eduljee, 2016; Berkant, 2016). Moreover, a previous research at a private university in Yogyakarta showed that the use of OHCT effectively improved ERPE of Psychology students. (Bantam et al., 2019). Further research be conducted involving students from diverse programs that require similar training. This is because the sample used in the previous research was limited to Psychology students exclusively.

Several studies have been conducted but none specifically addresses the effectiveness of OHCT to improve ERPE in Psychology and Management students. This current research employs Odoo HCM as ERP software or module used for training. There are various options available in the market for ERP software, ranging from paid to free versions, and several types of ERP software are used in companies, including SAP, Odoo, and Oracle. Among these, Odoo stands out as an open-source-based ERP software, offering several applications downloaded for free. As a cost-free learning tool, this application can effectively enhance the knowledge, skills, attitudes, and beliefs of students, providing added value to their learning experience.

The term OHCT is introduced as a training solution to optimize ERPE among students. The fundamental principle is that the learning process can occur through experiences initiated and personally encountered by students. This research aimed to test the effectiveness of OHCT in improving ERPE in a minimal contact situation among Psychology and Management students.

## Methods

### Research Design and Procedure

This research used CAR method, which was designed in collaboration with relevant parties, and adapted to the classroom situation or current conditions to improve the learning quality. According to Khasinah (2013), CAR is performed by conditioning the classroom to enhance the learning process and practices through innovative new methods. It consists of four stages in a cycle, starting with action planning, followed by observation activities, and concluding with reflection to analyze the data.

The experimental design used was the Nonequivalent Control Group Design with Pretest and Posttest, proposed by Campbell and Stanley (Shaughnessy et al., 2015). This research involves initial, final, and additional follow-up measurements, resulting in final measurements for both groups after training.

OHCT training utilized the module or guide created by Bantam (2020) and adapted the concept to suit the current situation of adopting new habits with reduced physical contact. Therefore, training was conducted online through various digital platforms such as Zoom, email, and WhatsApp. To ensure a seamless training experience, four co-facilitators who were proficient in the use of Odoo software and had previous experience in assisting others with technical issues were present to support and guide the participants.

A pretest was conducted roughly three weeks before the actual session and the implementation of OHCT. The results were thoroughly analyzed to determine which subjects met the necessary criteria and subsequently placed into either the control or experimental group.

Group	Pre-test	X	Post-test	Follow-up
Experimental	O <sub>1</sub>	OHCT	O <sub>2</sub>	O <sub>3</sub>
Control	O <sub>4</sub>		O <sub>5</sub>	O <sub>6</sub>

Figure 1. Nonequivalent control group design with pretest and posttest design

Since the program was designed to enhance proficiency in using ERP software, it was deemed more appropriate to include individuals with 'very low' to 'moderate' ERPE levels willing to participate in training.

Subsequently, the experimental group received OHCT treatment for two days. The control group was placed on the waiting list, and only received the treatment after the research process was completed. Meanwhile, the groups were also subjected to a post-test measurement two weeks after the completion of OHCT before conducting a follow-up to determine further effects.

The research was broadly divided into three phases, namely preparation, implementation, and evaluation. Furthermore, a series of OHCT procedures using CAR involved the direct involvement of the process, from identifying initial problems to conducting training and measuring as well as evaluating the outcomes of the implementation.

The preparation phase consisted of planning and reconnaissance simulation. During this phase, initial problem identification and coordination with various parties occurred, as well as learning modules, training modules, and measurement tools were adjusted accordingly. The steps involved in conducting training and using software were reviewed and refreshed with the co-facilitators. ERP-EQ was distributed, and an online reconnaissance simulation was performed in collaboration with the co-facilitators. Furthermore, the co-facilitators were adequately prepared, training groups were assigned, and the Zoom platform or training medium was determined.

The implementation phase involved the execution of the designed plan, where OHCT was conducted over two sessions, each lasting four hours. OHCT covered various aspects, including knowledge, skills, and attitudes. Training methods employed included lectures/mini-lectures, videos, homework assignments, individual practice, discussions, and Q&A sessions. The first session consisted of an introduction to ERP and Odoo, a review

of Human Capital/Human Resource Management material, motivation, individual practice, and assignment. The second session was dedicated to individual practice in using ERP Odoo software, with each co-facilitator assigned to five subjects. In addition, the evaluation phase involved the observation, assessment, analysis, conclusion, and reporting of OHCT program. The four co-facilitators carried out the observation during training sessions through the administration of reaction and knowledge evaluation questionnaires, as well as ERP-EQ.

### Research Subject

Nonprobability Purposive Sampling technique was used, and the selection of a group of subjects was based on specific characteristics considered closely related to the known population (Hadi, 2016). The criteria for the subjects were undergraduate students majoring in Psychology and Management at a private university in Yogyakarta, both males and females, aged between 18 and 25 years, with pretest scores less than 59, and owning a laptop compatible with or capable of installing Odoo software version 8.0. Meanwhile, the pretest was conducted using an Enterprise Resource Planning Efficacy Questionnaire (ERP-EQ).

During the pretest, approximately 57 students completed the questionnaire, but only 40 met the specified criteria. The subjects were randomly divided into two groups, consisting of 20 subjects for the experimental and control groups, respectively.

Table 1  
*Distribution of ERP-EQ Items*

Aspect	Favorable Items	
	Item Number	Total
ERP magnitude	1, 4, 7, 10, 13	5
ERP strength	2, 5, 8, 11, 14	5
ERP generalizability	3, 6, 9, 12, 15	5
Total		15

### Research Measurement Tool

The measurement instrument for ERPE used ERP-EQ developed by Bantam et al. (2019). The instrument encompassed magnitude, strength, and generalizability, comprising a total of 15 favorable items. ERP-EQ employed a rating scale with six response alternatives ranging from 1 (Very Incompetent) to 6 (Very Competent). Furthermore, the valid item correlation coefficients ranged from .794 to .912, and the reliability coefficient (Alpha) was .982. The validity and reliability of ERP-EQ were deemed acceptable for use as a measurement tool, as shown in Table 1.

### Results and Discussion

#### Result

##### Description of Research Subjects

Table 2 presents the description of the research, where the experimental and control groups consist of 20 subjects, each comprising 3 males and 17 females. In addition, the research participants comprised 23 and 17 individuals enrolled in Psychology and Management study program. They are currently studying during the odd 3rd and 5th semesters with the ages range of 18 to 21 years.

##### Hypothesis test

An initial step was taken to analyze the pretest data of the control and experimental groups through the utilization of the non-parametric Mann-Whitney analysis to assess efficacy of OHCT. The purpose of this step was to establish the equivalence of pretest data between the two groups.

The Mann-Whitney data in Table 3 indicates no difference between the control (Md = 47, n = 20) and the experimental groups (Md = 47.5, n = 20), with a U-value, Z-value, and p-value of 195, -.135, and .892 during the pretest. The sig value is greater than .05 ( $p > .05$ ), indicating that there is no significant difference in the pretest data. The mean rank for the experimental and control group is 20.75 and 20.25, respectively. This

difference is not statistically significant even though there is a difference of .50. Therefore, further analysis is conducted using the Friedman test to examine the effect of OHCT by comparing the pretest, posttest, and follow-up data in the experimental and control groups.

Table 2  
Description of Research Subjects

No	Initials	Age	Gender	Semes- ter	Study Program
Experimental Group					
1	AD	20	Male	5	Management
2	AS	20	Female	5	Management
3	AA	21	Male	3	Psychology
4	DC	19	Female	5	Psychology
5	EY	21	Female	5	Psychology
6	KR	19	Female	3	Management
7	RA	20	Female	5	Management
8	WS	19	Female	3	Management
9	AF	20	Female	5	Psychology
10	AL	20	Female	5	Psychology
11	AM	20	Female	5	Management
12	CV	20	Female	5	Psychology
13	DM	20	Female	5	Psychology
14	DK	19	Female	3	Psychology
15	HF	19	Female	3	Psychology
16	MR	20	Male	3	Management
17	NA	20	Female	3	Psychology
18	RK	19	Female	3	Management
19	SP	20	Female	5	Management
20	SL	20	Female	5	Management
Control Group					
1	AY	20	Male	5	Psychology
2	AW	20	Female	5	Management
3	FG	20	Female	5	Psychology
4	HP	18	Female	3	Psychology
5	I	18	Female	3	Management
6	JF	20	Female	5	Psychology
7	A	20	Female	5	Psychology
8	CA	20	Male	5	Psychology
9	CS	20	Female	5	Psychology
10	DS	21	Male	5	Psychology
11	ES	19	Female	3	Management
12	EF	19	Female	3	Management
13	FN	19	Female	3	Management
14	IM	19	Female	3	Management
15	IMR	19	Female	5	Psychology
16	IW	20	Female	5	Psychology
17	PC	20	Female	5	Psychology
18	PS	20	Female	5	Psychology
19	RS	20	Female	5	Psychology
20	SD	19	Female	3	Management

Table 3  
Mann Whitney Test on Pre-test of ERPE

Group	p	Desk	Z	N	Md	$\mu$
Exp-	.892	P > .05	-	40	47.5	20.75
Control		(insignificant)	.135		47	20.25

Table 4  
Friedman Test on ERPE

Group	Measurement	p	Desk	$\chi^2$	Md	$\mu$ Rank
Exp	Pre	.00	p<.05	27.	47.5	1.08
	Post		(Significant)	195	61	2.35
	Follow-up				63	2.58
Control	Pre	.130	p>.05	4.0	47	1.88
	Post		(Insignificant)	81	47	2.35
	Follow-up				46	1.78

Description:

- p : Sig
- $\chi^2$  : Chi Square Value
- N : Number of Research Subjects
- Md : Median
- $\mu$  Rank : Mean Rank

According to the data presented in Table 4, it can be inferred that there were a total of 20 subjects who participated in the pretest, posttest, and follow-up measurements in the experimental group. This indicates that there were no dropouts during the data collection process. The Friedman test results showed a significant difference in ERPE data in the experimental group measured at three-time points (pretest, posttest, and follow-up), with a  $\chi^2$  value of 27.195 (2, n = 20),  $p < 0.05$ . The data also indicated an improvement from the pretest (Md = 47.5) to the posttest (Md = 61), and a further improvement in the follow-up measurement (Md = 63). Therefore, there was an increase in ERPE in the experimental group after receiving OHCT or a difference in ERPE in the pretest, posttest, and follow-up measurements. The mean rank of the follow-up measurement ( $\mu$  Rank = 2.58) had the highest value, followed by the posttest ( $\mu$  Rank = 2.35) and the pretest ( $\mu$  Rank = 1.08).

In the control group, there were also 20 subjects during the pretest, posttest, and follow-up measurements. The Friedman test results showed no significant difference in ERPE data measured at the three-time points, with a  $\chi^2$  value of 4.081 (2, n = 20),  $p > 0.05$ . The data indicated no significant improvement from the pretest (Md = 47) to the posttest (Md = 47.5), and there was a decrease in the follow-up measurement (Md = 46.5). Therefore, there was no difference in ERPE in the control group among the three

measurements. The mean rank of ERPE data showed the highest value in the posttest measurement ( $\mu$  Rank = 2.35), followed by the pretest ( $\mu$  rank = 1.88), and the follow-up ( $\mu$  rank = 1.78).

Despite the overall research findings showing an improvement in ERPE in the experimental group after receiving OHCT during the less-contact period, some subjects did not experience a significant increase. DK decreased from pretest to posttest, while AL, AS, DC, EY, HF, SP, and SL decreased from posttest to follow-up measurement.

### Discussion

The results indicated that OHCT with CAR method is effective in improving or optimizing ERPE in Psychology and Management students at a university in Yogyakarta. The analysis showed a significant difference in the experimental group, measured at pretest, posttest, and follow-up. Meanwhile, the control group measured at three points, showed no significant difference. The improvement can be attributed to the activities conducted during OHCT provided to the participants.

Similarly, Bantam et al. (2019) showed that OHCT can enhance ERPE in Psychology students at an Islamic-based university. There was a significant difference between the control and experimental groups in the pretest, posttest, and follow-up observations, with an F value of 37.25 and  $p = .000$  ( $p < .05$ ).

Several studies on the effectiveness of training or interventions that involve direct practice by participants have shown a significant contribution to increasing confidence or self-efficacy in learning and preparing participants to face the future with greater maturity (Sabzian & Gilakjani, 2013; Mullen et al., 2015; Ikonomopoulos et al., 2016; Akhlaghi et al., 2017; Nur et al., 2022). According to Maulana (2018), work environment, self-efficacy, and participant support significantly contribute to achieving training objectives. Training provided directly and through practical work experiences in real-life settings can enhance self-confidence,

which was expected to influence behavioral changes (Yaqin et al., 2017).

Furthermore, Berkant (2016) determined the level of computer self-efficacy and the attitudes of students in the Faculty of Education toward the implementation of computers to support the learning process. The results showed an increase in computer self-efficacy among students, leading to an improvement in attitudes toward the implementation of computers to support the learning process. This was in line with Schlebusch (2018), where low computer anxiety and high self-efficacy were important factors that contributed to the academic success of students. Therefore, computer skills and technical proficiency should be developed from an early stage for positive purposes.

According to Syarvia (2014), repeated and hands-on experiences that simulate real-life situations enable participants to learn significantly. Meanwhile, direct practice in using software can alleviate concerns and build confidence, allowing users to feel prepared and assured in their work. Furthermore, successful experiences in a given practice tend to bolster the self-efficacy of individuals. Engaging in direct practice with technology or software has been shown to motivate individuals and generate greater interest, as opposed to more conventional modes of learning such as reading and listening (Zheng et al., 2017; Sahoo & Panda, 2021; Chen et al., 2018).

Wang et al. (in Loar, 2018) concluded that students with high levels of technical self-efficacy achieve better academic performance in computer or software-related subjects due to their confidence. According to Compeau and Higgins (in Bantam et al., 2019), changing the mindset and belief of computer incompetence transformed an uncertain attitude into a more confident and prepared mindset for implementing software or specific tasks. Individuals willing and capable of exploring their competencies, especially in using technology can become more confident, and adaptable (Aslan, 2021).

Bandura (in Bantam et al., 2019) identified four factors that influence ERPE of individuals. These included past experiences, experiences of others, persuasive approaches, and psychology effects. This research designed the direct involvement of users or students in interacting with ERP software to ensure their preparedness and confidence in using ERP software in future corporate settings.

Concerning the limitations, several human resource modules within Odoo software cannot be used, such as modules related to HR training and performance evaluation. This is because software is free, and using the entire module requires additional development or investment. Furthermore, training guide used is based on Odoo version 8, while some laptops of students do not support the version. As a solution, this research used the web version of Odoo, but it is not supported by training guide. This required the trainers to provide hands-on assistance, and some participants had to borrow other laptops to participate in training.

## Conclusion

In conclusion, OHCT with the CAT method can optimize or improve ERPE among students, studying Psychology and Management at a university in Yogyakarta. Students gained additional knowledge, a confident attitude, and skills in using ERP through training. This is evidenced by the ability to face and overcome programming language or software difficulties as well as the complexity of ERP modules used. Students have exhibited assurance in efficiently accomplishing tasks through the utilization of ERP software. Moreover, they have demonstrated proficiency in operating ERP software applied to their respective work domains.

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