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Enhancing the Self-Directed Learning of Non-Native English Speaking Employees through an Integration of Peer Support and Digital Applications

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Abstract

A combination of globalization and growth of the immigrant population has created a need to foster more inclusive training. Currently, many organizations rely on traditional English-only training and have discriminatory practices which dampen the self-efficacy of non-native English speakers. Digital applications, ChatGPT and Google Translate, and peer support offer cost-effective solutions to foster a sustainable training environment. A quasi-experimental study using four phases including baselining, the intervention of peer training, the intervention of self-directed learning, and evaluation was implemented in a real-world manufacturing environment. A total of 28 non-native English speaking machine operator trainees completed pre-intervention and post-intervention surveys that measured the self-efficacy to engage in self-directed learning. Results from paired samples t-tests indicated statistically significant increases in self-efficacy after the interventions across the entire group as well as all three sampled shifts. The findings indicate that the digital applications and peer support foster improved self-efficacy for non-native English speaking trainees to engage in self-directed learning behaviors. Consequently, this offers leaders of cash strapped organizations a training approach that is practical and affordable while aligning to philosophical trends. It also supports inclusive training of a growing portion of the population which can improve long-term sustainability. Potential limits to the study are in the form of its short-term nature which doesn't account for the novelty effect, its small sample size, and the survey design does not measure real knowledge growth.

Keywords

Digital Applications, Peer Support, Non-Native English Speakers, Responsive,

Self-Efficacy, Self-Directed Learning, Machine Operators, Entry-Level, English-Only, ChatGPT, Google Translate

1. Introduction

Traditionally, workplace training programs have strategically relied on narrow English-only practices and apprenticeships while maintaining unrealistic developmental expectations for employees (Gambin & Hogarth, 2017; Sanden, 2018). Conversely, organizations are now at a crossroads while facing the challenges of a competitive employment landscape and a globalized economic environment. These factors have created a need to develop more effective training methods that cater to employee diversity leading to organizational sustainability and profitability.

Once a devalued portion of the workforce, immigrants are a growing segment of the population, possess diverse perspectives, and have unique skills that are invaluable to companies seeking entry-level technical employees (Appleby, 2024; Krol, 2021). Nevertheless, language barriers and antiquated English-only practices suppress self-efficacy and hamper learning outcomes (Enama, 2016; Moron & Mujtaba, 2018). These non-responsive practices are not only cumbersome for non-native learners, but they are also problematic budget conscious organizations that lack the financial capital to invest in high-cost training programs (Gambin & Hogarth, 2017). Consequently, employees that are unable to sufficiently read and speak English are hindered when learning technical concepts which reduces their learning confidence (Enama, 2016). These key points indicate the need for a cost-effective training strategy that is practical, promotes inclusivity, and facilitates the transfer of critical technical knowledge.

Groundbreaking digital applications present opportunities to improve workplace education by reducing language barriers through translation, problem-solving, and summarization (Alsalem, 2019; Orrù et al., 2023). In addition, a deeper understanding of how to utilize the applications can be taught to non-English speaking employees by leveraging same language peers as trainers which grows self-efficacy (Ngo et al., 2022). This is underscored by data from research which shows that peer support can improve collaboration, self-directed learning, and technical skills of learners (Fernández-Martín et al., 2022; Nevgi et al., 2006). Meaning, organizations can employ peer support to compensate for growth in workforce diversity. Yet, the current literature does not address the feasibility of these methods in cash strapped workplace environments, nor is there an integration that combines peer support and digital applications together to improve outcomes for employees.

A training approach that integrates digital applications and responsive peer support offers a pathway to narrow the gap that diverse employees face when in workplace education. Specifically, the integration of Google Translate (GT),

ChatGPT, and responsive peer support is a practical alternative for resource stricken organizations. When used appropriately, these tools can assist direct leaders of non-native English speakers involved in technical training. Providing these leaders with effective tools is important because they are responsible for promoting and sustaining an environment that enhances employee outcomes (Cohen, 2013).

This document articulates both the data and findings of a detailed exploration of an integration of digital applications, GT and ChatGPT, and peer support have in a workplace training context involving low-level technical employees (Thurman, 2025). The study attempts to ascertain the impact that an affordable and innovative training approach has on the self-efficacy of non-native English speaking employees to engage in self-directed learning. The practical methods and subsequent approach utilized a real-world training environment involving diverse participants with the aim of giving organizations insight on a realistic option to support employee learning foster and inclusion.

2. Literature Review

The purpose of the research was to measure the impact of an integration of digital applications and inclusive training methods to determine the change in perceived self-efficacy among learning diverse employees. This review examines each foundational aspect to the proposed design beginning with the concept of self-efficacy and its connection to self-directed learning**.** Then, there is an examination of the various barriers and discriminatory practices that non-native English speaking employees face which hinder self-efficacy and stagnate training outcomes. Next, strategies that promote inclusive learning are explored followed by a look into digital applications' impact on self-efficacy. Finally, a justification and hypothesis are extended on the effect of the approach in workplace learning.

2.1. The Impact of Self-Efficacy on Work Engagement and Self-Directed Learning

Self-efficacy is an essential element in an individual's developmental journey that drives the behaviors surrounding self-directed learning. Bandura (1997) notes that self-efficacy includes an individual's thought patterns which in turn drive subsequent behaviors and motivations that lead to accomplishing goals. This concept of self-efficacy could be a key resource to increase engagement and foster a positive social work environment (Consiglio et al., 2016). Therefore, increases in self-efficacy equate to behaviors that align to organizational goals that desire a self-directed learning workforce (Lemmetty & Collin, 2020). Moreover, previous research has demonstrated that supportive environments aid in promoting self-efficacy. Consiglio et al. (2016) discovered that employees that have positive perceptions of their environment also have higher levels of work engagement and self-efficacy. Furthermore, Teng (2024) found a correlation between lower anxiety, higher motivation, and a learner's self-efficacy to complete tasks. In contrast,

linguistic barriers dampen self-efficacy which negatively impacts learning. Challenges in linguistic ambiguity leads to perceived learner incompetence which prevent non-native speakers from understanding complex concepts and drives the overt knowledge hiding behaviors relating to lowered self-efficacy (Ahmad, 2017; Tenzer et al., 2021).

Along with supportive environmental structures, digital applications have influenced learner self-efficacy. Specifically, the applications of GT and ChatGPT have been shown to aid in promoting more confidence in learners. One study found increased self-directed learning engagement in diverse language speakers, who had a wide variety of backgrounds, when using GT while another study found that the application motivated participants to execute flexible learning strategies (Bahri & Mahadi, 2016; van Lieshout & Cardoso, 2022). For ChatGPT, studies have discovered that the applications capability to assist in problem-solving and create customizable learning experiences positively impacts an individual's self-directed behavior to acquire knowledge (Li et al., 2024; Orrù et al., 2023). The resulting increase in self-direction correlates to positive increases in self-efficacy (Bandura, 1997). Consequently, the utilization of these technologies in a learning setting promotes higher levels of self-efficacy which in turn drives self-directed learning behavior that is desired by employers.

2.2. Obstacles in Learning for Non-Native Speakers

Studies show that non-native English speakers face barriers that stifle self-efficacy including biases, inequitable policies, and poor leadership. Birkelund et al. (2020) discovered that hiring teams can form negative stereotypes or become risk averse when recruiting diverse speakers based on previous experiences leading to discriminatory practices. Moreover, policymakers might require employees to speak only English while devaluing linguistic diversity which forces employees to engage in narrow forms of training (Sanden, 2018). Furthermore, programs that can more effectively support these employees are costly which leads resistance to change (Sanden, 2018). These challenges foster barriers that lead to practices that are accepted under legal loopholes that cite safety and production concerns (Stein, 2017). These issues are compounded for non-native English speakers in workplace training by the actions of others in the environment resulting in overt problems in the form of linguistic sidelining and knowledge hiding (Ahmad, 2017; Tenzer et al., 2021). Consequently, these unsupportive training environments result in a reduction of self-directed behaviors which stifle the self-efficacy of learning employees (Diamantidis & Chatzoglou, 2019).

2.3. Enhancing Self-Efficacy through the Provision of Responsive Support Practices

The promotion of effective training strategies and fostering a supportive environment align to the strengths of non-native English speaking employees. From a leadership perspective, the direct leaders of employees are key in establishing an

inclusive workplace (Consiglio et al., 2016; Ng et al., 2022). Direct leaders can implement a technique called positive psychology which focuses on promoting good qualities that play key roles in fostering both increased motivation and satisfaction in the workplace (Martin, 2005). Additionally, educators can drive engagement and outcomes using techniques that cater to the language backgrounds of their learners through encouraging hands-on learning, targeted interventions, and providing supplementary linguistic resources (Gallagher & Haan, 2020; Sanford et al., 2019). These practices could be utilized in the form of linguistically similar peers in support roles during the training process. Research involving same language peers as instructors has shown to increase the knowledge and self-efficacy of learners (Karim & Mohammed, 2018; Yang et al., 2015). Consequently, the self-efficacy of non-native English speakers can be improved using positive psychology via establishing friendly resources and the provision of shared language peers who are able to effectively communicate with learners.

2.4. Supporting Non-Native English Speakers through Utilizing Digital Applications

The implementation of modern technologies into workplace development is becoming more advantageous for organizations that practice lean philosophies. The literature provides insight on the effectiveness of two emerging technologies, GT and ChatGPT, on supporting self-efficacy. Research has shown that the utilization of GT as a translation tool can increase a learner's comprehension and vocabulary (Alsalem, 2019; Yanti & Meka, 2019). These studies were supported through findings by van Lieshout & Cardosa (2022), who discovered that learners demonstrated a 54% improvement in vocab retention and phrases. Findings have shown that GT is fast and easy-to-use while the users perceive the technology as a valuable tool which allows them to understand fundamental educational concepts through translation (Alhaisoni & Alhaysony, 2017; Yanti & Meka, 2019). Similarly to GT, studies have demonstrated that ChatGPT is a tool for completing translation tasks and positively enhances diverse language speakers' vocabulary usage (Li et al., 2024). Furthermore, ChatGPT's personalization and learning goal support result in a positive influence on self-efficacy, reduce helpless feelings, increases engagement, and elevate motivation (Lee et al., 2024; Li et al., 2024, Lin, 2023).

Limitations to the use of GT and ChatGPT have been expressed through inaccurate translation and the technologies' temporary impact on learning. Alsalem (2019) notes that GT doesn't accurately translate several languages and that the technology doesn't support sustained learning. Furthermore, both technologies can be prone to the novelty effect which can temporarily increase the motivational levels of learners because they are using a new tool (van Lieshout & Cardosa, 2022). However, research shows that the applications have vast benefits in supporting self-efficacy and motivation which connect to its ability to support self-directed learning behavior that satisfies organizational philosophical trends (Lemmetty & Collin, 2020).

2.5. Integrating Peer Support and Digital Applications to Improve Learning

The developmental outcomes of non-native English speakers are hindered in unresponsive environments through knowledge hiding and linguistic sidelining which reduces a learner's motivation and confidence (Ahmad, 2017; Tenzer et al., 2021). The utilization of responsive strategies can mitigate language barriers that impact knowledge acquisition thereby driving self-efficacy and self-directed learner behavior. Advancements in digital applications can reduce language gaps leading to increases in motivation, confidence, and knowledge acquisition. Findings underscore this through non-native speaker self-efficacy improvements on learning activities for both the applications of GT and ChatGPT (Lee et al., 2024; Li et al., 2024; Lin, 2023). Moreover, the use of same language peers in an educational support role has been effective at fostering knowledge acquisition and promoting a learner's self-efficacy (Karim & Mohammed, 2018; Yang et al., 2015). Integrating peer support offers an opportunity to teach non-native English speakers how to effectively use digital applications inside an active work environment to engage in self-directed learning. Consequently, these technologies provide practical alternatives to English-only policies while meeting philosophical trends that push toward self-directed learning workplace (Lemmetty & Collin, 2020; Sanden, 2018).

The technologies are restricted by the novelty effect and the limited availability of languages (Alsalem, 2019; van Lieshout & Cardosa, 2022). Moving into the future, these gaps will decrease as digital applications evolve thereby increasing relevance to the areas of translation and problem-solving. Consequently, the utilization of an integrated approach that combines peer support and digital applications offers a route to improving the self-efficacy of non-native English speakers that are training in entry-level technical roles. Justification of this approach comes from its cost-effective and practical nature which satisfies the needs of cash strapped leaders (Sanden, 2018). Moreover, the designs inclusive nature reduces challenges faced by non-native English speakers while promoting increases in self-directed learning sought by organizations (Lemmetty & Collin, 2020; Moron & Mujtaba, 2018). Thus, it is hypothesized that an integration of digital applications, Google and ChatGPT, and peer support will increase the self-efficacy of non-native English-speaking trainees to engage in self-directed learning.

3. Methods

The setting utilized for the study was a real-world work environment at a rapidly growing manufacturer in the United States. A four-phased quasi-experimental design was used beginning with establishing baseline self-efficacy scores, followed by two intervention phases, and ending with a final phase measuring change in self-efficacy. For this model, the independent variables were peer support and digital applications, Google Translate and ChatGPT, which were administered during the intervention phases. This allowed for examination of the growth in self-

efficacy, the dependent variable, by comparing pre-intervention and post-intervention scores to determine the impact of the interventions. Limitations of the design were in the form of difficulties gaining an adequate sample size and internal validity risks from selection bias and selection-maturation. However, the design was necessary to ascertain the impact of the interventions because participants were already exposed to a perceived non-responsive training environment while being needed when obtaining large sample sizes and random assignment are not possible (Mills & Gay, 2023). Other limitations were in the form of the novelty effect and a lack of representation to other environments and languages not in the study.

3.1. Recruiting

Permission to conduct the study was given by the participating organizations leadership while the data was gathered without identifiers. A total of 46 were recruited for the study with 38 accepting to participate through an informed consent process. All spoke a primarily language other than English which included French, Arabic, Burmese, Creole, Spanish, and Amharic. A total of 8 were recruited as facilitators with the remaining 30, training as entry-level machine operators from 0 to 13 months, were the target of the intervention. Moreover, the participants had been exposed to a training environment that provided English-only materials which was good for establishing an effective baseline for a non-responsive workplace training environment for non-native English speakers.

3.2. Facilitator Preparation

The facilitators were prepared through one-on-one instruction from the researcher which focused on developing an understanding of both digital applications. The purpose of this step was to ensure that the facilitators understood the purpose of the technologies along with how to use each application. Additionally, they were exposed to the standardized instruction instruments that would be used in both the peer instruction and self-directed learning phases. This exposure included simulating the included scenarios while using the digital applications until the facilitators were able to guide the researcher through the process without error. These facilitators were not time because the intention was to ensure subject confidence of mastery. This not only provided them with the knowledge of how to use the applications but also gave them insight on how to answer potential questions from participants.

3.3. Pre-Intervention—Baseline Phase

The participants completed a pre-intervention survey containing 7 close-ended questions on a 5-point Likert scale (see **Appendix A**). Its purpose was to establish baseline self-efficacy measurements of participants receiving training that lacked linguistic responsiveness and developed by the researcher to include questions that were applicable to a self-directed workplace environment that consisted on

non-native English speakers which was an effective quantitative method for collective and evaluating data (South et al., 2022). The survey was pilot tested on 14 individuals, not involved in the data analysis, revealed Cronbach's alpha level of .87 which is considered an acceptable level of reliability (Taber, 2017).

3.4. Intervention 1—Peer Instruction Phase

A total of 10 facilitators were recruited with 8 accepting to be utilized as trainers with each speaking a primary language represented by the participants, displayed a high level of English comprehension, and were advanced operators which made them ideal trainers. The facilitators were trained on using GT and ChatGPT supplied on an iPad with internet access. After mastery, these experts taught the participants, in their native languages, how to use the tablet and applications on a variety of common world troubleshooting and knowledge gathering scenarios. An instruction sheet, which was pilot tested for clarity and standardized, included the theory of car starting and a procedure on starting a car (see **Appendix B**). The purpose was for the participants to become proficient with using the applications to guide problem-solving and knowledge growth on known concepts before moving to the self-directed learning phase.

3.5. Intervention 2—Self-Directed Learning Phase

The participants engaged in four scenarios that were based on a specific type of machine common throughout the organization. They were all given an instruction sheet with four scenarios that were pilot tested for clarity and standardized which strengthened validity. Two scenarios required the participant to use GT to translate then read a standard operating procedure and a documented troubleshooting guide. These are omitted from the Appendix because of potential intellectual property concerns. A third scenario required participants to use ChatGPT to learn theory of operations by taking a photo of the machine's identification plate (see **Appendix C**). A final scenario involved taking a photo of a fault code displayed on an HMI then asking ChatGPT to provide a step-by-step guide on how to resolve the issue (see **Appendix D**). Each scenario required participants to translate the text into their native language. The procedure promoted both knowledge development and gave participants a tool to use to troubleshoot and resolve issues.

3.6. Post-Intervention—Evaluation Phase

A post-intervention survey was administered to the participants which was identical to the pre-intervention survey, thus enhancing standardization and reducing the potential for confounding variables during assessment that lead to data unreliability (Mills & Gay, 2023). These factors, along with the smaller sample size, enabled the utilization of a Shapiro-Wilk Test for normality and a paired samples t-test to determine if the approach resulted in significant changes in self-efficacy. Moreover, the use of a paired samples t-test was practical because it effectively

compares two sets of scores from the same group (Mills & Gay, 2023).

4. Results

The study investigated whether the digital applications of Google Translate and ChatGPT, along with peer support, increased non-native English speaking trainees' self-efficacy to engage in self-directed learning. The hypotheses (H_1) predicted that there would be a statistically significant increase in self-efficacy after the intervention when compared to baseline. The quasi-experimental design allowed for self-efficacy to be measured with surveys before and after the implementation of the interventions. Data was gathered from participants ($N = 30$) equally across three shifts with all being classified as non-native English speakers training as entry-level machine operators from 0 to 13 months. Challenges were in the form of dialect differences among facilitators and participants, lag time in digital application processing, and slow training which led to the incorporation of added queue time to ensure all experiments were completed.

Data screening was conducted to check for straight-lining, incompleteness, and outliers resulting in two data sets from second shift participants being discarded which reduced the size of the sample ($n = 28$). Pre-intervention participant scores were subtracted from post-intervention scores which provided a data set to evaluate. Based on a Shapiro-Wilk Test, **Figure 1** QQ plot shows that the data does not deviate significantly from the mean for self-efficacy scores to engage in self-directed learning behaviors ($M = 6.4$, $SD = 5.3$, $p = .141$). Additionally, Cronbach's alpha score of .74 further indicated good reliability. Moreover, a power analysis was computed using a within-subjects formula as follows (Cohen, 1988):

$$\text{Cohen's D} = \frac{M_{post} - M_{pre}}{SD_{diff}}$$

M_{post} = the average mean of participant's post-intervention scores equating to 30.61.

M_{pre} = the average mean of participant's pre-intervention scores equating to 24.21.

SD_{diff} = the standard deviation of the difference of participants' pre-intervention and post-intervention scores which was 5.3.

The resulting Cohen's D measure was 1.2, which indicates a large effect that is certain to be detected; however, the smaller sample size ($n = 28$) could produce more variability in other sampled populations. The results of normality and reliability testing indicate the appropriateness of using a paired samples t-test; however, the generalizability is limited by the smaller sample size.

A paired samples t-test compared the pre- and post-intervention scores of each participant ($n = 28$) with hypothesis difference at zero, 27 degrees of freedom (df), and a one-tailed significance level of $p < .05$. As seen in **Figure 2**, the resulting analysis indicates that post-intervention scores increased on average with a positive correlation between the intervention and change in self-efficacy

scores ($M = 6.4$, $p = 3.98 \times 10^{-07}$, $r = .41$). This data aligns with H_1 which states that the digital applications of Google Translate and ChatGPT, along with peer support, increase a non-native English trainees' self-efficacy to engage in self-directed learning.

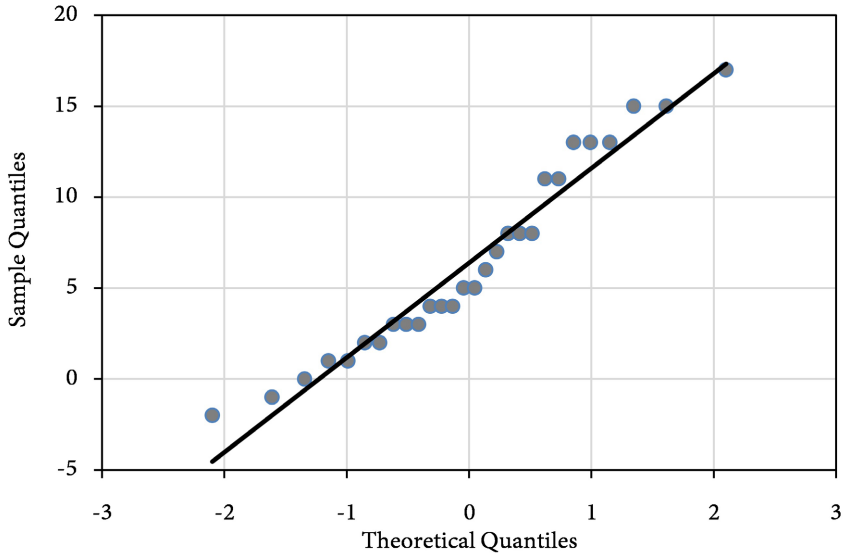

Figure 1. Normality distribution of self-efficacy scores.

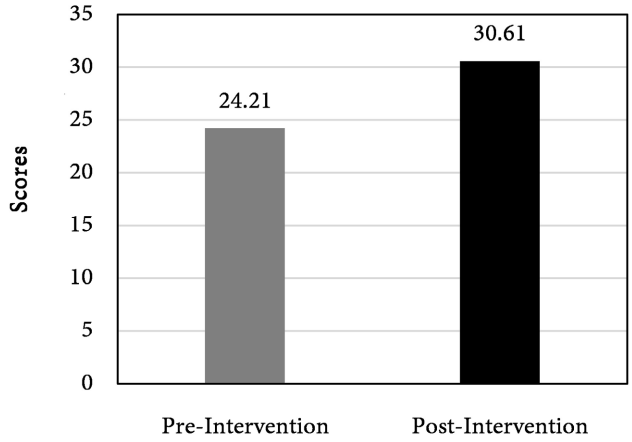

Figure 2. Mean self-efficacy scores.

The use of the same statistical methods on shift-specific scores indicated increases in self-efficacy for participants on all three shifts as seen in Figure 3. The third shift sample ($n = 10$) had the lowest pre-intervention score ($M = 21.2$) while having the highest post-intervention score ($M = 31$), demonstrating a mean change of 9.8 ($p = .0003$). First shift participants ($n = 10$) had higher pre-intervention scores ($M = 25.8$) with similar post-intervention scores ($M = 30.6$) though a less prominent mean increase of 4.8 ($p = .003$). Similarly, the smaller second shift sample ($n = 8$) had high pre-intervention self-efficacy scores ($M = 26$) while having the lowest post-intervention scores ($M = 30.13$) which equated to lower a

mean change of 4.13 ($p = .008$) which demonstrated the smallest gain. Third shift changes exceeded the extreme significance threshold while first and second shift data sets also indicated a high level of significance ($p < .001$). Overall, a deeper analysis of shift-specific data further supports H_1.

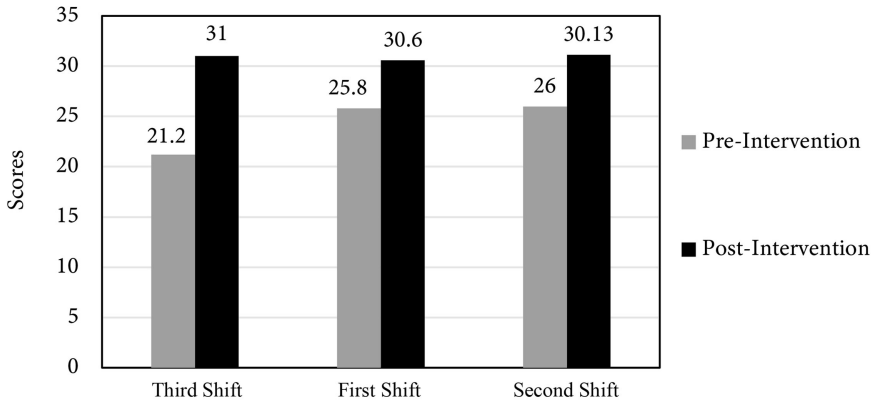

Figure 3. Shift-specific mean self-efficacy scores self-efficacy scores.

5. Discussion

The data analysis explored the impact that the integration of GT, ChatGPT, and peer support had on the self-efficacy of employees to engage in self-directed learning behaviors. Specifically, the responsive approach targeted non-native English speakers that were training as machine operators. In alignment with H_1, the findings articulate that the approach led to statistically significant increase in mean self-efficacy ($M = 6.4$) of the sampled population ($n = 28$) while also extending to the population of each shift. This indicates that participants perceived that the mobile applications and peer support were more effective in building confidence and motivation to engage in learning tasks when compared to the previous state which was void of such provisions. However, it is important to emphasize that these results are limited to the short-term nature of the study which does not measure the impact of the novelty effect.

Moreover, the results transcended shift-specific variables that are seen in manufacturing training environments that cause fluctuations in responsive supports in the form of linguistic accessibility, quality of leadership, and other resources. Interestingly, the greatest impact in self-efficacy was found on third shift which showed the largest increase compared to baseline scores ($M = 9.8$). The results show that the approach can influence the self-efficacy of learners even when navigating workplace training challenges such as language barriers, cultural differences, and varying levels of integrated support. The differences also illuminate the challenges to the effectiveness of the digital applications and peer support. Although changes in self-efficacy were significant, second and third shift were less pronounced indicating that the strategy could be less effective in environments that are better resourced. That said, these implications still demonstrate that the strategy could foster self-directed learning behavior of non-native English speak-

ers in overcoming challenges in knowledge transfer and hiding (Ahmad, 2017; Tenzer et al., 2021). Consequently, it provides a developmental pathway to support technical employees, specifically entry-level machine operators, in overcoming non-responsive training environments.

6. Limitations

Limitations concern the potential impact of false positives from short-term engagement via the novelty effect brought forth in the literature (van Lieshout & Cardoso, 2022). Moreover, the Hawthorne effect could have skewed the data by causing the participants to change their behaviors and perceptions because of involvement in the research (Sedgwick & Greenwood, 2015). Participants could have developed favorable perceptions of the approach which resulted in improved self-efficacy scores. Furthermore, the study does not involve extensive populations and settings outside of the sampled organization which brings concerns of generalizability and the digital applications effectiveness at translating rare languages (Mills & Gay, 2023). Furthermore, the recruitment of larger sample sizes could strengthen the statistical power that limits the current design. Moreover, the use of achievement tests would determine if there is real knowledge growth, a concern mentioned by Alsalem (2019). These issues needed addressed to achieve real buy-in from leaders.

7. Conclusion

The findings indicate that the digital applications and peer support increased the self-efficacy of the participants across all three shifts at an organization in the manufacturing industry. Specifically, non-native English speakers that were training as machine operators which is a role that requires technical knowledge and problem-solving skills on complex equipment in the work environment. These results present practical applications for leaders and direct supervisors in supporting the self-directed learning behavior which aligns with workforce trends and competitive organizational goals (Lemmetty & Collin, 2020). The integration of these applications and support is affordable, easy to implement, and offers the added benefit of promoting inclusivity which can be utilized as early as employee orientation. Therefore, this offers a practical method of supporting the development of a growing portion of the population which increases organizational sustainability to counter fluctuations in the employee landscape.

The study provides alternatives to better support non-native English speakers, allows organizations to navigate immigration growth, and builds on the value that machine operators bring to long-term sustainability (Appleby, 2024; Krol, 2021). Consequently, this offers leaders a pathway that leads to eventual change in English-only policies while developing a diverse workforce that drives innovation.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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Appendix A. Self-Efficacy Survey

Survey						
Question		Not at all True	Barely True	Unsure	Moderately True	Exactly True
1	I am confident I can learn skills to be successful by myself.					
2	Learning new skills while alone is not overwhelming.					
3	Work supplied resources help me solve problems when working with others.					
4	Language differences prevent me from proactively learning.					
5	I am motivated to learn tasks without language support.					
6	I can manage and complete difficult learning goals on time without the need of translated materials.					
7	I am comfortable asking questions for clarification in a different language.					

Appendix B. Peer-Participant Instruction Sheet

Training scenario

The following process has been provided to help teach you ho to use the digital technologies of Google Translate and ChatGPT. This process will give you step-by-step instructions on how to start your car. You will be able to ask the peer the purpose of these technologies and other questions that you have about how to use the technologies based on the scenario below:

Starting your car.

1. Unlock the door.
2. Open the door.
3. Enter the vehicle.
4. Fasten seat belt.
5. Insert Key into the ignition.
6. Push on the brake pedal with your right foot.
7. While maintaining brake pressure, turn the key to the run position and hold until the vehicle starts.
8. Release the brake pedal.

After reading this on Google Translate, you will then use ChatGPT to determine the following:

1. Summary of car starting theory.
2. Common causes of a car not starting.
3. Procedure to fix the most common problem.

Keywords to use for ChatGPT:

1. Translate documents to **INSERT YOUR LANGUAGE.**
2. What is this machine?
3. A summary of the machine's theory of operations?
4. Common problems.
5. Procedure to fix the most common problem?
6. Note: you can choose to use other words.

Appendix C. Self-Directed Learning Scenario Three

Using ChatGPT, scan the following and translate it into YOUR LANGUAGE.

Troubleshooting

1. Go to **INSERT THE NAME OF THE MACHINE.**
2. Locate equipment identification nameplate.
3. Using ChatGPT, scan equipment identification nameplate.
4. Ask ChatGPT to identify the following problem and translate it to **YOUR LANGUAGE.**
5. Examine possible causes of **INSERT A COMMON PROBLEM.**
6. Scan the faulted HMI (see example below):
    a. Explain what is the fault?
    b. What are the common causes of the fault?
    c. Give me a step-by-step solution to correct the fault.

NOTE: Below is what the HMI looks like in fault state.

INSERT PHOTO OF THE HMI IN A FAULTED STATE

Appendix D: Self-Directed Learning Scenario Four

Using ChatGPT, scan the following and translate it into **YOUR LANGUAGE.**

Theory of Operations

1. Go to **INSERT THE NAME OF THE MACHINE.**
2. Locate equipment identification nameplate.
3. Using ChatGPT, scan equipment identification nameplate.
4. Ask for a brief theory of operations and translate it to your native language.
5. Read through the material.
6. Ask ChatGPT what the common issues for the machine are.
7. Read through the material.

Note: Below is what the identification nameplate looks like.

PHOTO OF ID PLATE HERE