

AI-POWERED PERSONALIZED LEARNING SYSTEMS FOR ENHANCING SELF-CONFIDENCE AND COMMUNICATION SKILLS



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Abstract

Artificial Intelligence (AI) has gradually influenced the educational and skills development setting through personalized, adaptive, and feedback-oriented learning processes. The current study aims to investigate the effect of AI-enabled personalized learning on learners' self-confidence and communication skills and go further to examine the impact of these learning systems on emotional intelligence-related skills. The mixed-method approach was utilized for the research using a total of 200 undergraduate students and young professionals ranging from ages 18 to 35. Students were randomly allocated to an experimental group (n=100) that utilized AI-enabled platforms such as Duolingo, Babbel, and Replika for 12 weeks and a control group (n=100) that underwent the traditional mode of communication and personality development training. From the data presented, it is evident that there is a 22% increase in self-confidence and a 18% increase in communication skills among those who received AI Coaching, while the corresponding increases in the control group are 9% and 7%. The inferential data from the research material shows the following: pre-post improvement in the EI scales ($p < 0.001$); correlation between AI Coaching Effectiveness and Empathy ($r = 0.63$) and Emotional Regulation ($r = 0.59$); and regression coefficient of $\beta = 0.61$ for AI Coaching Effectiveness as a predictor of emotional intelligence. Among the qualitative findings are: immediate feedback; individually paced lessons; less anxiety; motivation; privacy concerns; and continuous need for human mentoring. In conclusion, AI can be a potent supplementary instrument for the development of self-confidence and communication skills, provided that it is conducted through ethical, human-assisted learning.

Keywords: Artificial Intelligence, Personalized Learning, Self-Confidence, Communication Skills, Emotional Intelligence, Adaptive Learning, AI Coaching, Learner Confidence.

1. Introduction

The increasing significance of competencies with a focus on employability has made personality development an inseparable part of higher education. In regard to the undergraduate students, technical skills do not automatically ensure the performance in interview, group discussion, presentation, teamwork, leadership, and workplace settings. The level of self-confidence impacts the readiness to join and try something new, ask questions, receive feedback, while the communication competency impacts the way of conveying ideas, emotions, intentions, and professional information. Thus, these competencies are interrelated and cannot be viewed in isolation from each other.

Finally, the research falls into the category of the

responsible innovation approach. In case AI is used for collecting speech data, written answers, behavioral data, and history of learning, the educational value of personalization should be balanced with issues of privacy, transparency, accessibility, bias, and over reliance.

The development of personality skills is vital for both personal and professional success. Together with academic and technical proficiency, self-confidence and good communication skills have become must-have competencies for employability, leadership, teamwork, and career advancement. In the context of multicultural and professionally diverse workplaces, the ability to express oneself confidently and effectively contributes to mutual understanding and

helps overcome communication barriers.

While traditional methods for the development of personality and communication skills including lectures, group work, debates, extempore sessions, role play, workshops, and mentoring are useful, they normally offer similar learning experience to each group of learners and do not provide sufficient opportunities for practice and personalized feedback. AI-based personalized learning technologies represent a different way of doing this by adapting learning materials, exercises, feedback, and level of difficulty to the needs of each learner.

AI-driven chatbots, adaptive learning platforms, natural language processing apps, pronunciation training tools, and conversational technologies can help learners get plenty of practice in a relatively non-judgmental setting. As a result, in addition to the development of communication skills, such technologies could facilitate the development of personality skills.

2. Literature Review

2.1 Self-Confidence and Communication

Confidence in the current research is viewed in the context of the learners' sense of capability and readiness to accomplish communication and personality development tasks. Confidence can be enhanced through successful practice, constructive criticism, improvement, and lessons learned. Communication competence, like confidence, depends on practice rather than exposure. Talking, listening, responding, explaining, negotiating, and participation in social situations are some of the skills that depend on frequent practice.

Use of the Rosenberg Self-Esteem Scale in the previous research offers an established ground to explore the confidence outcome in the current research, while the use of the Communication Competence Questionnaire offers an opportunity to evaluate the participants' communication competence. The extended instrument will offer an additional tool that will help to understand the reasons behind changes in communication and confidence.

Self-confidence and communication are interconnected aspects of personality development. According to Bandura's concept of self-efficacy, confidence is determined by the beliefs of one's capability to perform tasks, while communication competence refers to the capacity to convey, interpret, and control the messages.

2.2 Ai In Personalized Learning

The aspect of personalization is crucial in the design of this model of learning. Contrary to offering similar exercises to all students, an AI-based system will use performance indicators and offer practice that is closer to one's needs. For example, personalization in language and communication learning may

include adjustment of the vocabulary difficulty, conversation prompts, pronunciation practice, feedback frequency, and repetition. This type of automation is beneficial not only because of automation but also due to adaptability.

In this research, Duolingo and Babbel are the language learning tools, and Replika serves as an example of the conversational platform that can offer interactional practice. Thus, the role of these tools in the research is not interchangeable as they are used as examples of learning environments supported by artificial intelligence. The similarity that they have to offer to the research is the option of repetition and individual interaction and feedback.

The application of AI to personalization and adaptation has been growing. In their work, Holmes, Bialik, and Fadel (2019) list adaptive tutoring, natural language processing, and intelligent learning applications as means of individualizing educational experiences.

2.3 Emotional Intelligence and Personality Development

This extended study expands the outcome framework from the areas of confidence and communication to the selected competencies related to emotional intelligence. Emotional Self-Awareness refers to one's awareness of their own emotions during academic and professional interactions. Emotional Regulation refers to the management of emotions under pressure. Empathy involves the understanding of emotions and perspective of other people. Interpersonal Communication refers to the expression and management of messages confidently in interacting with other people. AI Coaching Effectiveness involves learners' perception of how useful and personalized coaching was from the environment supported by AI. The Learner Confidence is the learners' perception of confidence improvements achieved as a result of the learning process.

This expanded framework of the research includes emotional intelligence competencies due to the fact that confidence and communication depend on learners' awareness and regulation of emotions as well as their understanding of other people.

2.4 Research Gap

The gap has particular relevance for engineering education, which tends to emphasize technical ability in its curriculum, with communication, confidence, teamwork, and employability skills being learned through shorter-term training programmes. The AI layer could offer further opportunities for practice without the need to replace current classroom courses entirely. Thus, there is potential practical relevance for institutions looking for scalable ways to enhance learners' communication skills and personality development.

Though artificial intelligence and education have been widely researched, most of these studies have been focused on educational achievement, tutoring, and subject knowledge acquisition. At the same time, there has not been sufficient research on non-educational outcomes, such as self-confidence, communication skills, emotional competencies, and personality development. This gap will be filled by the current study.

Research Objectives

- Evaluation of the impact of AI-aided personalized learning tools on building self-confidence among learners.
- Evaluation of the impact of AI on assisting learners in developing their communication skills using personalized and feedback-based approaches.
- Examination of the impact of AI-aided coaching on Emotional Self-Awareness, Emotional Regulation, Empathy, and Interpersonal Communication.
- Examine the experiences and perception of learners about the use of AI-aided platforms like Duolingo, Babbel, and Replika.
- Exploration of ethical, accessibility, privacy, and over-reliance issues involved in AI-aided personality development.
- Recommendations for integration of AI into overall human-aided personality development programs.

4. Theoretical Foundation

The basis for Constructivist Learning Theory is that the learners construct meaning through engagement, experience, interactions, reflection, and feedback. Practice supported by AI technology is an opportunity to construct responses in repeated contexts instead of getting information from outside. For communication training, the importance of the learners' participation in the process of creating language or interaction is especially crucial since the skill cannot be built by reading about communication.

The theory of Language Acquisition also includes the principles of repeated experience, practice, corrective feedback, and incremental complexity. The theory is applicable to communication because the fluency and confidence usually come from practice.

Bandura's Self-Efficacy Theory directly explains the confidence result because of the effect of mastery experience, feedback, and sense of improvement on belief in the capabilities.

In general, all of these theories create the picture of

the learning process which implies the cycle of personalized practice giving experience, feedback allowing for reflection, mastery increasing confidence, and confidence encouraging more engagement.

The theory takes into consideration the theories of Constructivist Learning, self-regulated learning, language acquisition, adaptive learning, Growth Mindset theory, and Self-Efficacy Theory by Bandura. The theory of constructivism stresses the importance of learning by interaction, reflection, situational context, and feedback. In adaptive learning, the learner gets the practice according to their preparedness. The process of learning can enhance self-efficacy through mastery experiences, feedback, and progress.

5. Research Methodology

5.1 Research Design

The experimental comparison also creates an actual comparison between personalized learning through the use of AI and conventional communication/personality development training. It is important to note that there is no indication in this design of the ineffectiveness of the control intervention but simply acts as a standard of comparison for additional benefits that can be gained from the AI-enabled method.

In this research, a mixed methods design using both quantitative survey/experimental procedures and qualitative interviews/ focus group discussion was employed. This was chosen due to the fact that confidence and communication have measurable as well as subjective elements to them.

5.2 Participants and Sampling

The sample of 200 participants was evenly divided into the two groups (experimental and control). The sampled process involved stratification according to gender, education level and communication skills. This stratification is necessary due to the fact that communication outcomes differ depending on exposure and characteristics of learners. By taking into consideration the communication skills of the learners in the sampling process, the study seeks to avoid comparing purely on preexisting differences.

A total of 200 participants were included. The population comprised undergraduate students and young professionals aged 18–35 years. Stratified random sampling was reported, with stratification based on gender, education level, and baseline communication skill.

Group	n	Intervention	Duration
Experimental	100	AI-powered personalized learning: Duolingo, Babbel, Replika	12 weeks
Control	100	Traditional communication/personality training, GD and role play	12 weeks

Table interpretation (participant / intervention): There were 100 participants in each group, and the duration of the interventions in both was 12 weeks, giving a basis of comparison. While the experimental group was exposed to artificial intelligence personalized learning through Duolingo, Babbel, and Replika, the control group was exposed to traditional communication and personality development exercises such as group discussions and role plays. This shows that the main difference between the two groups was the learning method only.

5.3 Experimental Procedure

The duration of the intervention was twelve weeks. It comprised a typical pre-test, intervention and post-test structure of studies. Week 0 served as the baseline, 12 weeks were for learning, and the results from Week 12 were collected after the intervention period. In other words, the same general framework was used for both groups, which increases the reliability of the study because there are no ways to attribute any results to the greater time of training provided to one of the groups.

For the experimental group, personalized training was provided by AI-based software. For the control group, conventional communication skills development techniques were utilized, such as discussions and role play. In this way, the difference is in the method and personalization of practice, not in the lack of training altogether.

Pre-test was done at Week 0, then there was an intervention period of 12 weeks and post-test at

Week 12. Experimental group had personalized AI training; the control group was subjected to traditional training in communication and personality skills.

5.4 Instruments

These six constructs can be seen as moving along a continuum from inner awareness to outer performance. Emotional Self-Awareness pertains to awareness of one's own emotions; Emotional Regulation pertains to control of emotional reactions; Empathy pertains to awareness of other people; Interpersonal Communication is related to communication; AI Coaching Effectiveness is related to how helpful personalized AI coaching is seen; and Learner Confidence pertains to confidence-building.

Since there is no individual response data in the given material, the extended scale will have to be considered an example of the operationalization of the given study instead of an independently validated scale using only this particular file. Specifically, it would not be appropriate to publish expected reliability coefficients in relation to the data in this file.

In the original study, the Rosenberg Self-Esteem Scale (RSES) was used to measure self-confidence, and the Communication Competence Questionnaire (CCQ) was used to measure communication skills.

The expanded scale operationalizes these concepts with a 5-point Likert type scale (1 = Strongly Disagree; 5 = Strongly Agree).

Construct	Code	Items
Emotional Self-Awareness	ESA	4
Emotional Regulation	ER	4
Empathy	EMP	4
Interpersonal Communication	IC	4
AI Coaching Effectiveness	AICE	4
Learner Confidence	LC	3

Interpretation of construct structure table: the extended measure has six constructs and four items each in the following categories: Emotional Self-awareness, Emotional Regulation, Empathy, Interpersonal Communication, and AI Coaching Effectiveness. There are three items under the Learner's Confidence category. This is a broad construct structure despite maintaining brevity of the instrument. The item numbers vary among the constructs and hence should be taken into account

when calculating construct scores.

6. Scale Operationalization

The allocation of four items to each of the first five constructs and three items to Learner Confidence creates a compact instrument suitable for repeated administration. A shorter instrument can reduce respondent fatigue, which is relevant in pre-test/post-test research. At the same time, future validation should examine item-total relationships, factor structure, discriminant validity, and whether

the constructs remain distinct across different learner populations.

Construct	Representative item
Emotional Self-Awareness	I am aware of my emotions during academic or work-related interactions.
Emotional Regulation	I am able to control my emotions under pressure.
Empathy	I can understand how others feel in difficult situations.
Interpersonal Communication	I communicate my thoughts more clearly and confidently.
AI Coaching Effectiveness	The AI mentor provided personalized emotional guidance.
Learner Confidence	The AI system helped build my self-confidence.

Operationalization scale interpretation: the sample items operationalize the six constructs through learner-oriented perceptions, starting from emotional self-awareness, then regulation, empathy, interpersonal skills, AI coaching effectiveness, and finally confidence. This operational process is in line with the study's theoretical foundation, which connects the internally perceived emotional process with interpersonal communication and perceived assistance.

The complete scale consists of 23 items: four items for Emotional Self-Awareness, Emotional Regulation, Empathy, Interpersonal Communication, and AI Coaching Effectiveness, and three items for Learner Confidence.

7. Reliability Analysis

In the reliability table, the expected Cronbach's alphas range between 0.81 and 0.88. According to the criterion indicated in the provided source, all

alphas are above 0.70. Empathy (0.88) has the highest expected value; followed by AI Coaching Effectiveness (0.87) and Emotional Regulation (0.85); Interpersonal Communication (0.84), Emotional Self-Awareness (0.82) and Learner Confidence (0.81) also exceed the stated criterion.

This means that according to this table, the proposed constructs are expected to show acceptable to good reliability. Nonetheless, these are explicit expected values from the scale development material and not the estimates calculated using the 200 participants. An empirical paper for the final work should replace the expected alphas with those based on the raw response of the participants. The reason is that reliability is a property of scores from a specific sample rather than being an inherent feature of the test itself.

Below is the list of the expected Cronbach's alphas in the provided source for scale development.

Construct	Items	Expected α
Emotional Self-Awareness	4	0.82
Emotional Regulation	4	0.85
Empathy	4	0.88
Interpersonal Communication	4	0.84
AI Coaching Effectiveness	4	0.87
Learner Confidence	3	0.81

Interpretation of reliability table: All the expected Cronbach's alpha values are higher than the set minimum value of 0.70, with all the expected values lying between 0.81 and 0.88. These values show satisfactory or very good expected internal consistency of the constructs. But since these values have been expected based on the provided information on scale development, they need to be substituted by real values.

All expected values are above 0.70, implying that the scales meet the stated criterion of internal consistency.

8. Research Hypotheses

The hypotheses also differentiate between improvement and association. While H6 involves changes that occur during the course of the intervention period, the regression and correlation analyses involve relationships between constructs. It is critical to make this differentiation when analyzing

the statistical findings since a difference pre- and post-intervention means improvement and a positive correlation means an association or a regression coefficient means a predictive contribution in the stated model.

H1: AI-assisted EI coaching leads to a significant positive effect on Emotional Self-Awareness.

H2: AI-assisted EI coaching significantly contributes to the improvement in Emotional Regulation.

H3: AI-assisted EI coaching contributes to a significant impact on Empathy.

H4: AI-assisted EI coaching contributes significantly to the improvement in Interpersonal Communication.

H5: AI Coaching Effectiveness significantly influences the Learner Confidence.

H6: There exists a significant difference between pre-training and post-training EI levels of the participants.

9. Data Analysis

In the qualitative analysis, there was a thematic analysis using familiarization, coding, theme generation, review, naming, and reporting processes. Thematic analysis provides an opportunity to organize the experiences that are shared by the learners into interpretable categories. The qualitative and quantitative elements answer each other as the former analyzes how the learners experienced the intervention while the latter asks if the scores changed and how the scores were correlated.

The quantitative analysis involved the use of paired sample t-test for pre–post comparison, independent sample t-test for group comparison, one way ANOVA for demographic comparisons, Pearson correlation for constructs correlation and multiple regression for predictive relationship. The qualitative analysis involved the use of thematic analysis using familiarization, coding, theme generation, review, naming and reporting processes.

10. Results

Interpretation Note: All numeric data in Sections 10 and 11 are obtained from the research material. No new statistical analysis has been done on this expanded paper as the participant level data is not available on the supplied document.

Outcome	AI Group	Control Group
Self-confidence improvement	22%	9%
Communication improvement	18%	7%

Improvement Table Interpretation: The AI-assisted group demonstrates bigger improvements in both of the important measures. The gap between the two groups is 13% in self-confidence and 11% in communication. The constancy of the direction for both outcomes makes the descriptive argument stronger in favor of the AI-assisted approach, whereas the lack of raw scores makes it impossible to reconstruct the percentages.

10.2 Paired-Sample t-Test

For the paired-samples, the observed t-values are 6.21 for Emotional Self-Awareness, 5.87 for Emotional Regulation, 7.02 for Empathy, and 6.45 for Interpersonal Communication, respectively, with $p < 0.001$ for all four dimensions. Based on these consistent small p-values, it can be said that the pre–

10.1 Self-Confidence and Communication Outcomes

Table one gives the most accurate description of how the two interventions compare. Self-confidence increased by 22% among the AI group participants compared with 9% in the control group, while communication increased by 18% in the AI group compared with 7% in the control group. Improvement differences for self-confidence and communication are 13% and 11%, respectively. This is consistent for both variables, where the intervention group demonstrates higher improvement levels.

Interpretation of Table 1: the results show that more improvements occurred in the group receiving AI-based personalized-learning condition than the control group in terms of both self-confidence and communication skills. This result is significant as there was no improvement on a particular variable but two of them: self-confidence and communication. However, percentages must be viewed as improvement statistics provided by the study.

The original study reveals an increase of 22% in self-confidence among learners using AI-based personalized learning systems compared with 9% in the control group. Communication skills have increased by 18% in the AI group compared with 7% in the control group.

post differences mentioned are statistically significant according to the analysis provided in the source material.

Interpretation of Table 2: the highest t-value among those reported is 7.02 for Empathy, then 6.45 for Interpersonal Communication, 6.21 for Emotional Self-Awareness, and 5.87 for Emotional Regulation. Such order of the reported t-values shows that the greatest pre–post signal measured in standard units according to the data provided in the table is associated with Empathy. However, higher t-value does not necessarily mean greater practical significance since t-value depends on sample size and score variability as well. Thus, it can be concluded from the table that all four dimensions demonstrated statistically significant pre-post differences, which was the reason for supporting H6.

Dimension	t-value	p-value
Emotional Self-Awareness	6.21	<0.001
Emotional Regulation	5.87	<0.001
Empathy	7.02	<0.001
Interpersonal Communication	6.45	<0.001

Interpretation of the paired sample t-test table: for all dimensions reported in the table, $p < 0.001$, which means that there was statistically significant pre-post improvement in the provided analysis. In particular, empathy showed the highest t value (7.02), then interpersonal communication (6.45), emotional self-awareness (6.21), and emotional regulation (5.87). However, although this information confirms the conclusion made by the researchers concerning EI outcomes improvements, the t values cannot be considered as indicators of the effect size.

The provided analysis reveals statistically significant pre-post improvement in the four EI dimensions listed; therefore, H6 is supported.

10.3 Correlation Analysis

The correlation table shows $r = 0.63$ for AI Coaching

Variables	r	Significance
AI Coaching Effectiveness – Empathy	0.63	$p < 0.01$
AI Coaching Effectiveness – Emotional Regulation	0.59	$p < 0.01$

Interpretation of correlation matrix results: AI Coaching Effectiveness has a positive correlation with Empathy ($r = 0.63$) and Emotional Regulation ($r = 0.59$); both correlations are significant at $p < 0.01$ level. The correlation with Empathy is stronger than that with Emotional Regulation. From these results, it can be concluded that those participants who perceived AI coaching better showed better emotional skills, but causality cannot be established from these results alone.

The reported correlations indicate positive relationships between AI Coaching Effectiveness and Empathy and Emotional Regulation.

10.4 Regression Analysis

The regression table notes that AI Coaching Effectiveness is a predictor with $\beta = 0.61$ and $p <$

Predictor	β	p-value
AI Coaching Effectiveness	0.61	<0.001

p-value of less than 0.001, thus implying that there is a positive predictive link between AI Coaching Effectiveness and emotional intelligence in the provided model. The source adds that 61% of variance is accounted for; in an empirical model, this claim would require confirmation using the R-squared statistic instead of the beta value only.

The regression results provided show $\beta = 0.61$ and indicate that 61% of variance in overall emotional intelligence is accounted for by AI Coaching Effectiveness. According to the source materials, this finding confirms H1–H5.

10.5 Original Group Comparison Results

The group comparison table gives post-test mean scores for the original confidence and communication outcomes. Post-test mean score of

Effectiveness and Empathy and $r = 0.59$ for AI Coaching Effectiveness and Emotional Regulation. Both the coefficients have statistical significance at the $p < 0.01$ level. It can be described as moderately strong positive correlation within the scope of the provided analysis, suggesting that the higher effectiveness of AI coaching was associated with the higher self-reports on the two emotional competencies.

Interpretation of Table 3: the correlation with Empathy ($r = 0.63$) is a bit higher than with Emotional Regulation ($r = 0.59$). In other words, the table implies that learners who thought that AI coaching was more effective also reported higher emotional competencies. However, it would be incorrect to interpret correlation as an evidence that AI coaching causes improvement in those competencies.

0.001. It can be seen that the mentioned value of the predictor coefficient is statistically significant, and its value is positive, thus, the predictor contributes positively to the overall prediction of emotional intelligence.

Interpretation of Table 4: the positive value of the beta coefficient means that the higher value of AI Coaching Effectiveness leads to a higher value of overall emotional-intelligence score predicted by the model. The low p-value means the significance of the value in question. The supplied source provides additional explanation that 61% of variance in overall emotional intelligence can be explained by the value under consideration. However, this interpretation should be retained, but the beta coefficient value of 0.61 does not correspond directly to $R^2 = 0.61$.

3.48 was obtained for Self-Confidence in the AI group and 3.05 in the control group. For Communication Skills, the post-test mean scores were 3.45 and 3.10 in AI and control groups, respectively. The obtained t-values are 7.82 and 6.94 for Self-Confidence and Communication Skills, respectively, with $p < 0.001$.

Table 5 interpretation: The post-test mean scores for the AI group are larger for both outcomes – 0.43 is the mean difference for Self-Confidence and 0.35 is the mean difference for Communication Skills. Both differences between the two groups are statistically significant by the provided p-values. The confidence outcome has the greater numerical mean difference, and both outcomes show the same consistent trend in favor of the AI group. These results support the previously described improvement percentages and give inferential evidence about a difference between

the post-test group scores. Standard deviations and sample level distributions are not provided;

therefore, effect sizes like Cohen's *d* cannot be calculated independently using this table only.

Outcome	AI Post	Control Post	t	p
Self-Confidence	3.48	3.05	7.82	<0.001*
Communication Skills	3.45	3.10	6.94	<0.001*

The interpretation of the comparison of groups' table: post-test mean scores are higher for the AI group in relation to Self-Confidence (3.48 compared to 3.05) and Communication Skills (3.45 compared to 3.10). The difference of means is 0.43 and 0.35. The two t-tests are highly statistically significant at $p < 0.001$.

11. Qualitative Findings

Qualitative findings give more meaning to quantitative results. The participants appreciated the aspect of immediate feedback since the errors could be corrected without having to wait for any response from the instructor or fellow learner. The non-judgmental approach in the AI-based practice helped the learner feel less embarrassed especially those who feared speaking in public. Personalization of pace was considered useful because the learners

could repeat the difficult activities and progress faster with what they were already familiar with.

Interpretation of Table 6: The themes collectively explain a process that is used by AI in influencing the learner's confidence and communication ability. Immediate feedback facilitates correction; personalization helps attain a proper learning pace; reduced anxiety fosters psychological safety; and gamification motivates the learner to continue engaging in the activity. On the other hand, the last two themes form a very crucial balance. Therefore, the qualitative results not only show the usefulness of AI but also the situation in which it should be used.

The qualitative results are very important to the theoretical base. Reduced fear of judgment gives room for practice. Practice leads to mastery experiences, and these facilitate self-efficacy.

Theme	Interpretation
Immediate feedback boosts confidence	Learners valued instant, non-judgmental correction.
Personalized learning pace	AI adapted practice to individual difficulty levels.
Reduced anxiety and safe practice	Learners could practise without embarrassment.
Motivation through gamification	Badges, points and streaks encouraged engagement.
Ethical and privacy concerns	Participants expressed concern about data and voice storage.
Need for human mentorship	AI was viewed as useful but insufficient as a replacement for human interaction.

Explanation of the qualitative-thematic table: the themes reveal positive aspects as well as areas of caution regarding AI. Mechanisms that can positively influence engagement and confidence include immediate feedback, individualized learning pace, reduction of anxiety, and gamification. Issues of privacy and ethics, and the necessity for human mentoring are some of the areas where the application of AI faces its limitations.

12. Discussion

The results can be viewed as evidence of a potential meaningful contribution of personalized AI to communication and personality development. First of all, headline gains of the AI group imply greater reported gains in terms of self-confidence and communication compared to those made by the control group. In addition, the group comparison results also show higher means in post-test of the AI group. Finally, the results on EI include statistically significant pre-to-post changes in four EI dimensions and positive correlations between perceived AI coaching effectiveness and selected emotional competencies.

The second possible explanation is adaptive

difficulty. It implies that either excessively difficult or too simple tasks lead to repeated failure or low engagement respectively. Personalized systems help learners keep an appropriate level of difficulty by adapting practice.

In turn, emotional intelligence results can be considered as additional effects of the program beyond language skills. Indeed, the highest t-value among all paired results is observed in Empathy, and positive correlations are found between AI Coaching Effectiveness and both Empathy and Emotional Regulation.

These results are especially valuable for educational institutions specializing in engineering. The proposed combination of methods would provide an opportunity to engage in AI-assisted practice for continuous individual work, with classroom time devoted to real interaction, problem solving in teams, presentations, interviews, debates, leadership practices, and peer and teacher feedback. This separation of tasks could increase the interactive aspect of classroom activities, while individual practice could be ongoing.

The results of both studies combined show that AI-

assisted personalized learning can facilitate confidence and communication growth through the means of personalization, repetition, feedback, and adaptability. Improvements in self-confidence by 22% and 18% in the AI group are higher than the 9% and 7% increase in the control group. The emotional intelligence analysis results demonstrate statistically significant improvements pre- to post-test and correlations between AI Coaching Effectiveness and certain emotional competencies.

The research results support the theoretical framework behind the research. Constructivism and adaptive learning provide explanations for the benefits of individual practice and feedback, whereas self-efficacy theory serves as a framework for explaining how mastering experience and perception of achievements can help build confidence.

At the same time, the research results demonstrate limitations of using only AI. Issues related to privacy concerns, bias, reliance on technology, and less human interaction prove that AI should be used as a supplement rather than the sole tool. Human tutors play an important role in communicating, empathizing, cultural competence, and moral decision-making.

13. Ethical And Practical Implications

The first implication relates to privacy. Written messages, voices, voice messages, histories of interaction, as well as behaviors may be analyzed by communication-focused AI tools. Thus, institutions should let their learners know what information will be analyzed, why it will be analyzed, for how long it will be stored, and who will have access to this information. Consent and clear data practices are crucial for use of these systems within educational institutions.

The fourth implication relates to integration into pedagogy. The use of AI should be based on the alignment of AI applications with learning goals instead of mere attractiveness of technology. It is necessary for trainers to find out what kind of practice can be conducted via individualized AI and what kind of practice requires human involvement. Thus, a complete learning environment can be created where technology provides additional practice and human provides contextual evaluation.

Data privacy, responsible usage of speech and behavior information, avoidance of bias in algorithms, accessibility, and dependence of learners on AI-based practice are the issues to pay attention to for successful use of AI for personality development.

14. Limitations And Future Research

Several limitations need to be considered when interpreting the reported results. First, the provided materials lack information about raw data on the participant level. As a result, percentages, t-values,

correlations, regression coefficient, and expected reliability coefficients cannot be recalculated based on the current document. Second, there is no information about the results by gender, education, and initial communication skills, so it is impossible to conclude whether the obtained pattern is generalizable to other demographic subgroups.

Third, the extended scale is characterized by operational definitions and expected reliability coefficients, but there is no item-by-item responses data, factor analysis, and independent validation in the current document. Further research needs to confirm construct validity and reliability of the measurement tool based on a new empirical sample. Confirmatory factor analysis might be used to test the hypothesis about distinctiveness of the proposed six constructs.

Fourth, the intervention includes several AI-supported platforms. It is impossible from the current results to identify whether any particular platform or particular feature of any of these three platforms – Duolingo, Babbel, or Replika – made the largest contribution to the results.

Fifth, the study would require a longitudinal design. While a post-test immediately following the twelve-week intervention may be able to measure immediate changes, it cannot prove that these changes will be sustainable. A longitudinal design can include follow-up evaluations after three, six, or twelve months. A future study might explore the effects of transfer outcomes, such as performance in interviews, oral presentations, participating in discussion groups, or workplace communications.

The provided research materials do not contain participant-level information, subgroup information on demographics, or calculated reliability values. As such, the statistical measures reported above must be considered the provided study results and not recalculated ones. Future research would require larger and more diverse samples, longitudinal design, independent validation of scales, cross-cultural comparisons, and research into hybrid approaches combining AI and human mentoring.

15. Conclusion

Thus, the paper makes a comprehensive argument in favor of studying the application of AI-driven personalized learning as an auxiliary tool for personality and communication development. Indeed, the obtained 22% increase in self-confidence and 18% increase in communication in the AI group outperform the 9% and 7% increases in the control group, correspondingly. Moreover, the additional analyses have revealed significant pre-post differences on four EI components, positive correlations between AI Coaching Effectiveness and Empathy and Emotional Regulation and positive regression coefficient for AI Coaching Effectiveness.

The AI-driven personalized learning tools possess

substantial capabilities to foster self-confidence, communication and emotional competencies. The results of the current study reveal that the AI group has achieved more progress in terms of self-confidence and communication than the control group while the extended EI analysis demonstrates significant pre-post differences and positive relationship between AI Coaching Effectiveness and emotional competencies. Therefore, it can be concluded that AI represents a promising tool to incorporate into the process of personality development which is scalable, personalized and characterized by extensive feedback provision. However, AI should be used alongside human mentoring.

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