Measuring the practicality of the Moral IQ application for enhancing pre-service teachers' personality development

Samsul Arifin†, Dwi Setiyadi† & Sutri Ekawati‡

PGRI University of Madiun, Madiun City, Indonesia†
Public Elementary School 02 Dagangan, Madiun Regency, Indonesia‡

ABSTRACT: The personal contact limitations imposed by the Covid-19 pandemic's requirements made pre-service teachers' personality development a challenging process. However, in such circumstances, technological assistance can often offer preferential solutions due to its ease of use and practicality. Therefore, this study aimed to evaluate the practicality of using the Moral IQ application in providing pre-service teachers with an opportunity for moral enhancement. The study was based on a survey with 54 Moral IQ application users, including professional and pre-service teachers. After a month of using the application as learning assistance, they provided their opinion on the application's presentation, design, composition, usability, content and construction in a five-point Likert scale. The data were analysed using statistical measures, including ANOVA. The result showed that the Moral IQ application is well-designed, can attract high user interest, and meets other requirements for developing the personality competencies of pre-service teachers. Thus, it is highly recommended to determine the application's effectiveness in improving pre-service teachers' moral competency.

INTRODUCTION

The Indonesian legislation stipulates clear guidelines about the requisite competencies for teachers. The competency guidelines encompass pedagogical, moral, social and professional aspects [1][2]. Pedagogical competency refers to a teacher's thorough comprehension and utilisation of efficient teaching methodologies. Teachers must arrange purposeful and stimulating instructional sessions customised to the individual needs of each student, comprehend their requirements and deliver constructive evaluations [3][4].

Moral competency emphasises the significance of teacher characteristics and conduct, encompassing integrity, accountability, and adherence to professional and ethical standards. Teachers must demonstrate positive attitudes and behaviour, offer appropriate examples to illustrate their points and acknowledge the unique characteristics of each pupil. Social competency encompasses the teacher's aptitude for engaging with diverse individuals, which involves proficiently in communicating with students, parents, co-workers and the broader community.

Professional competency requires teachers to possess expertise and proficiency in their field of knowledge, promote ongoing learning and advancement, fully comprehend the curriculum and educational benchmarks, and demonstrate proficiency in implementation.

Teachers must demonstrate professionalism to become successful in their jobs. Demonstrating teacher professionalism is contingent upon their performance and is directly influenced by the skills and competencies they possess [5][6]. Hence, acquiring abilities is paramount and necessitates implementing available training programmes. Teachers are a crucial component of the education system.

The presence of highly skilled teachers profoundly impacts educational achievement since their expertise and personal qualities play an essential role in the success of academic activities, particularly in the context of learning. The teacher's demeanour significantly influences the development of the student's character. This phenomenon is quite understandable as humans, particularly students, tend to emulate the conduct of others to mould their characters [7][8].

However, the pandemic has significantly impacted several aspects of human life, including the disruption of lectures, where face-to-face classroom interaction between teachers and students no longer existed. The Covid-19 pandemic has led to the widespread adoption of on-line learning, which has replaced traditional teaching with digital interactions facilitated by on-line platforms [9-11].

The shift from traditional classroom learning to virtual interactions challenged the implementation of in-campus teaching and in-school teaching internships [12][13]. The sudden transition and the inadequate digital education infrastructure

hindered the development of pre-service teachers' competence. Learning shortfalls, regarding learning preparation, learning process, learning media/tools, and learning outcomes was identified following the Covid-19 pandemic.

Universities have implemented numerous measures to resolve challenges in pre-service teachers' personality competence enhancement, including on-line teaching internships and workshops. Although the two options were feasible during the social distancing policy, they did not meet the needs of pre-service teachers. Pre-service teachers need a natural school setting to experience the whole range of students' behaviour, including their negative characteristics. Enhancing the learning process with virtual technology allows them to easily visualise student misbehaviour at school and act appropriately according to behavioural theory. Virtual applications not only provide *real* experience of various cases, but also increase teachers' awareness of the emergence of inappropriate behaviour, and expand their perspectives on solving it [14]. One of the available virtual applications is the Moral IQ currently under development by SamEdu.id - Samsul Arifin's (one of the authors of this article) start-up company. The application has passed the functional testing and is currently in the alpha version in the prototype development. The current study aims to examine its practicality.
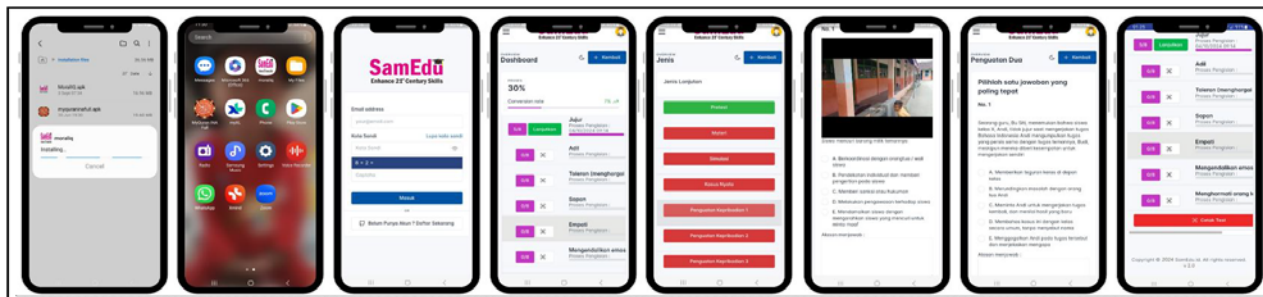

Figure 1. Selected display screens of the Moral IQ application.

Figure 1 indicates that the Moral IQ application is installable on Android smartphones. The application includes: the dashboard indicating the learner's progress; seven virtues of moral intelligence (honesty, fairness, tolerance, empathy, controlling emotions and respecting others); and pre-service teachers personality enhancement modules (personality pre-test, personality theory, video simulation of student delinquency cases, real cases upload by users, users' free-discussion forum, personality enhancement modules, personality post-test and pdf-printed results).

METHODS

The study was designed as a survey. Its main goal was to measure Moral IQ application users' satisfaction levels by rating each aspect of the application. The survey involved 54 participants varying in demographics and teaching settings. The participants were 23 pre-service teachers from several universities in East Java province, Indonesia, and 31 professional teachers at various school levels in Madiun Regency, Indonesia. They were selected using a purposive sampling technique, with the main criteria being an active user of the Moral IQ application for at least one month, from July to September 2024. The period was set up to find the respondents with relevant experience of using the application. The demographic details regarding the participants are presented in Table 1.

Table 1: Participants of the Moral IQ application's testing.

Aspects	Number
Gender	
Male	9
Female	45
Preferred not to mention	-
Age range (in years old)	
< 22	23
22 to 35	5
36 to 50	20
> 50	6
Education degree	
Undergraduate	23
Bachelor	30
Master	1
Professional teaching experience (in years)	
No experience	23
0 to 5	2
6 to 10	4
> 10	25

Table 1 shows that the ration of male to female participants was 1:5. Most respondents were professional teachers with a Bachelor's degree in education and more than ten years of teaching experience.

Data Collection Technique

The data was collected using a questionnaire. The questionnaire asked about selected aspects of the Moral IQ application, including presentation, design, composition, usability, content quality and construction. Each element was evaluated using a five-point Likert scale: 1 - very dissatisfied; 2 - dissatisfied; 3 - fair; 4 - satisfied; and 5 - very satisfied. The details of the aspects are as follows:

Table 2: Assessment criteria for practicality testing of the Moral IQ application.

Assessment aspects	Indicators
Presentation	1. Conceptual coherence
	2. Question presentation
	3. Individual and group discussion support
	4. Clear answer key
Design	5. Readable layout
	6. Clear visibility of colours on screen
	7. Appropriate fonts or characters
	8. Attractive display
	9. User interest's support
Composition	10. Appropriate modules
	11. Good quiz variation
	12. Image quality
	13. High dynamic
Usability	14. Easy access
	15. Efficiently assisting in task
	16. Well-functioning on Android devices
	17. Understandable menu and facilities
Content quality	18. Question alignment
	19. Concept accuracy
	20. Video accuracy
	21. Content's effectiveness
	22. Encouraging curiosity
Construction	23. User characteristics' support
	24. Order of questions
	25. Learning motivation support

Table 2 shows that the questionnaire comprised twenty-five indicators divided into six aspects. The participants rated each indicator according to their level of satisfaction with the Moral IQ application.

The constructed questionnaire was distributed to the prospective participants via e-mail and WhatsApp to collect the data. They were given a link to an on-line survey. After using the app for at least a month, they could access and complete the survey independently. This specific period allowed them enough time to explore the app's features for an accurate assessment. The data was then calculated to check the average user satisfaction and assessed for areas that needed improvement.

Data Analysis Technique

The data obtained from the questionnaire were analysed to determine the mean and standard deviation values, and Chronbach's alpha was used for testing internal consistency. The rating (opinion of each respondent) was classified as *convenient* if the mean score was higher than 4.2 (*very satisfied*).

Furthermore, *practical* rating ranged from 3.40-4.19 (*satisfied*); *reasonably practical* was from 2.60-3.39 (*fair*); and *unpractical* was from 1.8-2.59 (*dissatisfied*); and *decidedly unpractical* was less than 1.79 (*very dissatisfied*). One-way ANOVA was then conducted to investigate differences in user satisfaction. If the obtained p-value was lower than 0.05, the difference was significant, and the null hypothesis could be rejected.

RESULTS AND DISCUSSIONS

The results of data analysis are presented in Table 3 to Table 8, including the respondents' opinion about each aspect of the Moral IQ application.

Table 3: Moral IQ's presentation.

Statement	Mean	SD	Opinion
The concepts are orderly presented.	4.33	0.58	Convenient
The questions are engagingly presented.	3.98	0.69	Practical
The application supports both individual reflection and group discussions.	4.19	0.59	Practical
The answer key is clearly presented to help understanding the content.	4.00	0.64	Practical

Table 3 shows that the Moral IQ application met the users' expectations in regard to presentation, with the highest score for conceptual presentation. The Cronbach alpha of 0.729 obtained for all above statements indicates sufficient consistency and measure reliability.

Table 4: Moral IQ's design.

Statement	Mean	SD	Opinion
The layout is easy to read.	4.22	0.69	Convenient
The colours are clearly visible on the screen.	4.30	0.53	Convenient
The fonts and characters are appropriate.	4.31	0.58	Convenient
The application is visually attractive.	4.13	0.67	Practical
The design supports users' interest.	4.35	0.65	Convenient

Table 4 shows the high approval of the Moral IQ application's users in terms of design across almost all indicators. The Cronbach alpha value of 0.843 obtained for all above statements indicates sufficient consistency and measure reliability.

Table 5: Moral IQ's composition.

Statement	Mean	SD	Opinion
The modules are appropriately composed.	4.17	0.75	Practical
The application offers a good variety of quizzes.	4.09	0.76	Practical
The images are aligned with the modules.	4.20	0.56	Convenient
The video compositions are dynamic to keep the users engaged.	4.15	0.66	Practical

Table 5 shows that the alignment of images with the modules gained the users' highest recognition among any other composition indicators of the Moral IQ application. The Cronbach alpha value of 0.782 obtained for all above statements indicates sufficient consistency and measure reliability.

Table 6: Moral IQ's usability.

Statement	Mean	SD	Opinion
The application is easy to access.	4.17	0.82	Practical
The application helps me accomplish tasks efficiently.	4.15	0.53	Practical
The application works well on Android devices.	4.28	0.60	Convenient
The menus and features in the application are easy to understand.	4.28	0.63	Convenient

Table 6 demonstrated that the Moral IQ application works well on Android devices, provides understandable features, efficiently helps accomplish tasks, and is easy to access. The Cronbach alpha value of 0.798 obtained for all above statements indicates sufficient consistency and measure reliability.

Table 7: Moral IQ's content.

Statement	Mean	SD	Opinion
The questions align with the learning material.	4.20	0.59	Convenient
The concepts are accurately explained.	4.22	0.57	Convenient
The video accurately supports the content.	4.15	0.53	Practical
The content is straightforward.	4.28	0.63	Convenient
The content encourages further exploration.	4.13	0.70	Practical

Table 7 shows that the Moral IQ application's content, concepts' explanation and questions are *convenient* for the users. The Cronbach alpha value of 0.883 obtained for all above statements indicates sufficient consistency and measure reliability.

Table 8: Moral IQ's construction.

Statement	Mean	SD	Opinion
The questions are aligned with the student's ability level.	4.04	0.58	Practical
The order of questions is easy to follow.	4.06	0.63	Practical
The questions motivate students in their learning process.	4.26	0.59	Convenient

Table 8 demonstrated the construction indicators of the Moral IQ application, with the statement on motivation attracting the *convenient* rating. The Cronbach alpha value of 0.822 obtained for all above statements indicates sufficient consistency and measure reliability.

The one-way ANOVA was then conducted to determine differences among groups. The results are presented in Table 9.

Table 9: The results of one-way ANOVA testing.

Source of variation	SS	df	MS	F	*p*-value	Fcrit
Between groups	2988.395	5	597.679	136.797	0.00	2.242
Within groups	1389.370	318	4.369			
Total	4377.765	323				

Table 9 shows that the Moral IQ's presentation, design, composition, usability, content and construction influenced the users' satisfaction because the *p*-value of 0.00 was less than 0.05.

From the analysis results, it can be concluded that all Moral IQ features met the respondents' satisfaction. They could use various features appropriately, including uploading videos of actual cases and having interactive discussion forums for personality enhancement to make the right decisions in different situations. This finding concurs with other findings that refer to digital scenarios and role-playing to explore complex moral situations, which leads to discussions on ethical dilemmas and making moral judgments [15].

In regard to the present study, the inclusion of video led to a better understanding of a natural school setting. Pre-service teachers could easily illustrate challenging problems they might face during their future school teaching practices. The video also stimulated their ideas to find the best solution to enhance their moral competency. Another finding shows that moral reinforcement featuring multiple choices and essay formats could assist in fostering enhancement in pre-service teachers' moral values. The results support Malika's finding about the effectiveness of case studies for initiating moral action in specific cases [16].

The case description helped pre-service teachers understand students' feelings in many different settings. The teachers could have a better perspective about appropriate student conduct and properly explain the consequences of misbehaviour. The findings reveal that Moral IQ application's material on personality and mentors' feedback help pre-service teachers activate their moral schemata. Pre-service teachers could illustrate various solutions to specific moral cases. The two features helped them to learn how to adapt their behaviour to the student's development level. For instance, approaches to handling students' honesty problems at the elementary level significantly differed from those at the senior high level. This finding is consistent with the finding that collaborative learning platforms enhance the moral competency of pre-service teachers [17].

Communication platforms, such as forums, on-line communities and social media groups, encourage exchanging ideas, peer feedback, explanation of diverse perspectives, moral development, respect for others' views, and improve a sense of social responsibility. The study also revealed that the Moral IQ application met the users' preference for easy access and measurable technological advancement to enhance moral competency. It supports the finding that learning management systems can assist teachers in understanding ethical issues, moral reasoning, and can offer practical approaches to moral dilemmas, thus providing keen insight for teachers into their own moral growth [18][19].

The Moral IQ application's dashboard on learning progress enabled the users to easily monitor their study target. By noticing the learning percentage score, pre-service teachers could set different goals to improve their study. The features of moral competency, such as initial testing and post-learning testing, could also present the learning achievement of users. Pre-service teachers could determine whether they had already reached the target or should strengthen a particular personality aspect.

CONCLUSIONS

The Moral IQ application is intended to function as a learning platform to build pre-service teachers' moral competencies, especially since the practicality testing resulted in high satisfaction from most users. The Moral IQ application's features also appealed to the users' need for practical technology to assist in their personality development

and enhancement. The users were positively impressed by the Moral IQ application's presentation, design, composition, usability, content quality and construction. Thus, it is highly recommended to determine the Moral IQ application's effectiveness in improving pre-service teachers' moral competency.

ACKNOWLEDGEMENTS

REFERENCES

1. The Constitutional Law of Indonesia Number 14. Teachers and Lecturers' Competence. Jakarta: Ministry of Education and Culture (2005).
2. The Regulation of the Indonesian Director General of Teachers and Education Personnel Number 2626. Indonesian Teachers' Competence Model. Jakarta: Ministry of Education and Culture (2023).
3. Sumani and Arifin, S., The EFL pre-services teachers' pedagogical competence based on the instructional approach. *Proc. Inter. Conf. on English Language Teaching*, Surabaya, Indonesia: Atlantis Press, 204-207 (2018).
4. Arifin, S. and Sumani, Challenges on pre-services teachers' competence. *Proc. 63rd TEFLIN Inter. Conf. on Creativity and Innov. in Language Materials Develop. and Language Teaching Methodology in ASIA and Beyond*, Surabaya: Adibuana Press, 127-131 (2016).
5. Arifin, S., Nurkamto, J., Rochsantiningsih, D. and Gunarhadi, Investigating pre-service EFL teachers' strategies to overcome speaking anxiety during the shift from online to offline learning post-COVID-19 era. *rEFLections*. 31, **2**, 766-790 (2024).
6. Arifin, S., Nurkamto, J., Rochsantiningsih, D. and Gunarhadi, Degree of English-speaking anxiety experienced by EFL pre-service teachers in Madiun East Java. *Proc. 3rd Inter. Conf. on Innov. in Educ.: Digital Transfor. in Educ.*, Padang, Indonesia: AIP Publishing, 040015, 1-6 (2023).
7. Arifin, S. and Sumani, Analysis of the quality of micro-learning modules based on moral intelligence and instructional approach. *Proc. 1st SNAPMA*, Madiun: Unipma Press, 91-96 (2016).
8. Merdekawati, K., Character education in the perspective of chemistry pre-service teacher. *Proc. 2nd Inter. Seminar on Develop. of Chemical Educ. in 21st Century Learning*. Yogyakarta, Indonesia: AIP Publishing, 020001, 1-5 (2017).
9. Nuere, S. and Miguel, L., The digital/technological connection with COVID-19: an unprecedented challenge in university teaching. *Technol., Knowledge and Learning*, 26, **3**, 931-943 (2021).
10. Sumarni, S., Akhyar, M., Nizam, M. and Widyastono, H., Designing and validating an instrument to measure the practicality of the research-based blended flipped learning model. *World Trans. on Engng. and Technol. Educ.,* 20, **4**, 272-279 (2022).
11. Arifin, S., Nuuriyyah, A. and Rositasari, D., Game-based reading instruction: insights from student perceptions using digital jigsaw puzzles. *Science and Research (SAR) J.,* 7, **3**, 278-285 (2024).
12. Karatas, T.O. and Tuncer, H., Sustaining language skills development of pre-service EFL teachers despite the COVID-19 interruption: a case of emergency distance education. *Sustainability,* 12, **1**, 81-88 (2020).
13. Sayir, M.F., Aydin, N. and Aydeniz, S., The impact of COVID-19 on pre-service teachers' teaching practice. *Inter. J. of Educ. and Literacy Studies*, 10, **3**, 17-24 (2022).
14. Hidayat, M,, Rozak, R.W.A., Hakam, K.A., Kembara, M.D. and Parhan, M., Character education in Indonesia: how is it internalized and implemented in virtual learning? *Jurnal Cakrawala Pendidikan*, 41, **1**, 186-198 (2022).
15. Kurian, N. and Hajir, B., Should we stop talking about empathy? Virtual reality, refugee children and the ethics of technology-mediated moral education. *J. of Moral Educ.*, 53, **1**, 1-18 (2024).
16. Malika, B., Ybyraimzhanov, K., Gaukhar, S., Nurdaulet, S. and Ainur, A., The effect of information technologies on the development of moral values of future teachers based on innovations in education. *World J. on Educational Technol.: Current Issues*, 14, **1**, 164-174 (2022).
17. Parra, C. M., Gupta, M. and Mikalef, P., Information and communication technologies (ICT)-enabled severe moral communities and how the (Covid-19) pandemic might bring new ones. *Inter. J. of Infor. Manage.*, 57, **2**, 102271. 1-16 (2021).
18. Arifin, S., Setiyadi, D. and Ekawati, S., Functional testing of moral IQ applications to improve the ethical competence of prospective teachers. *Proc. 5th SNAPMA,* Madiun, Indonesia: Unipma Press 1-9 (2023).
19. Kutty, S.R. and Thambu, N., Exploring moral thinking using videos in a flipped classroom. *Inter. J. of Academic Research in Business and Social Sciences*, 7, **11**, 407-416 (2017).