JPPIPA 10(12) (2024)

Jurnal Penelitian Pendidikan IPA

Journal of Research in Science Education

http://jppipa.unram.ac.id/index.php/jppipa/index

The Effect of Applying the Archerys ID Model Instructional Design on Moral Character, Ethics, and Learning Performance of High School Students in Physics Learning

Mutia Egica Putri[1*], Darmansyah[1], Fetri Yeni[1], Zuwirna[1], Putri Syukriani[1], Maharani Rizky Pratiwi[1]

[1] Educational Technology, Postgraduate, Universitas Negeri Padang, Padang, Indonesia.

Received: May 22, 2024
Revised: October 24, 2024
Accepted: December 25, 2024
Published: December 31, 2024

Corresponding Author:
Mutia Egica Putri
egica22@gmail.com

DOI: 10.29303/jppipa.v10i12.9522

Abstract: Academic dishonesty and students' inability to contextualize learning, particularly in physics, contribute to poor understanding. This study investigates the impact of the Archerys ID Model on students' moral character, ethics, and learning performance in physics. The model is expected to enhance moral and ethical values while improving learning performance compared to conventional methods. A quasi-experimental design with Nonequivalent Control Group was used, involving two classes: an experimental class using the Archerys ID Model and a control class using traditional methods. Pretests and posttests measured changes in moral character, ethics, and learning performance, and data were analyzed using an Independent T-Test. The independent T-Test analysis shows that the Archerys ID Model significantly enhances students' moral character, ethics, and learning performance in physics for grade XI at SMAN 12 Padang, with significance values of 0.032, 0.023, and 0.031, respectively. These findings indicate that the Archerys ID Model is more effective than the TPACK instructional design model in fostering character and academic outcomes.

Keywords: Archerys ID model; Learning performance; Moral character; Student ethics; Physics learning

Introduction

Character education focuses on shaping moral and ethical values, as well as social skills, to create responsible individuals with integrity who can positively contribute to society by upholding universal values such as honesty, cooperation, and empathy. In practice, students assess themselves as having good morals, ethics, and academic performance. However, the results of interviews and direct observations reveal a contradiction to these self-assessments. Students admitted to talking during class, sleeping, and neglecting cleanliness, which contradicts the integration of morals and ethics in learning. Reysen's research supports this, indicating that students' high self-assessments do not align with their actual behavior (Reysen et al., 2017). A study conducted by the Josephson Institute in 2012 found that nearly 52% of 23,000 high school students admitted to cheating during exams, and more than 76% had plagiarized assignments from other students (Fendler et al., 2023). A study at SMA Negeri 1 Kecamatan Suliki found that 23 out of 36 students still engaged in cheating during tests (Atikah et al., 2023).

Academic dishonesty among students is driven by the pressure to achieve high grades and difficulties in understanding subjects, particularly physics, which is seen as challenging and irrelevant to everyday life, making the learning experience less meaningful. Wider's research reveals that students tend to avoid physics lessons because they consider the problems too difficult to solve (Wider & Wider, 2023). Radulovic, in his

How to Cite:
Putri, M. E., Darmansyah, Yeni, F., Zuwirna, Syukriani, P., & Pratiwi, M. R. (2024). The Effect of Applying the Archerys ID Model Instructional Design on Moral Character, Ethics, and Learning Performance of High School Students in Physics Learning. *Jurnal Penelitian Pendidikan IPA*, *10*(12), 11061–11069. https://doi.org/10.29303/jppipa.v10i12.9522

research, reveals that most students consider the material taught in physics classes to be too complex (Radulović et al., 2023), and the phenomena presented are sometimes abstract, requiring critical thinking skills (Xing et al., 2022). Many students find physics difficult to understand, which leads them to engage in academic dishonesty such as cheating and plagiarism, undermining academic integrity and lowering the quality of learning. This is also expressed by Stiles, who noted that students tend to view academic cheating, such as copying, as normal behavior (Stiles et al., 2019).

The moral and ethical issues mentioned above are phenomena found at various educational levels. Efforts to address these issues are essential, one of which is the application of instructional design that can integrate not only learning performance but also moral and ethical values. This instructional design is the *Archerys ID Model*, implemented in higher education and junior high school levels. In its implementation, this instructional design has been able to reduce the level of academic dishonesty at the higher education level (Darmansyah, & Darman, 2022) and has also impacted the moral character and performance of junior high school students (Farisa et al., 2023). Therefore, the application of the *Archerys ID Model* at the senior high school level is deemed necessary to address the above issues.

Initial observations and data collection were conducted at SMA Negeri 12 Padang. A random selection of one class from each grade level was made, specifically classes X E.11, XI IPA 3, and XII IPA 1. The students were instructed to complete a questionnaire on moral, ethical, and performance integration to assess their current state and prior knowledge in these areas. The questionnaire, validated by Prof. Dr. Darmansyah, S.T., M.Pd, consisted of 60 statements. It was administered twice, and interviews were conducted with 12 students as well as with a physics teacher who also serves as the school's curriculum vice-principal.

The questionnaire results, displayed in a table, indicate a decrease in the average scores between the first and second administrations. This decline was attributed to students' lack of attention and seriousness when completing the second questionnaire, which included some negative statements, unlike the first questionnaire, which consisted entirely of positive ones. Despite this, the overall average score remained relatively high (above 2.98), suggesting that students had integrated moral, ethical, and performance aspects into their learning.

However, these results contradicted the statements made by the interviewed students and teachers. All 12 students agreed that showing respect to teachers, such as paying attention and refraining from talking during lessons, is a form of moral and ethical integration. Yet, all admitted to having talked during lessons. Additionally, some students admitted to sleeping in class during teaching sessions. Furthermore, direct observations by the researcher revealed poor classroom cleanliness, disorganized furniture, and unclean whiteboards when teachers entered the room. These findings align with research which showed a disconnect between students' self-perception and their actual behavior, such as disrespecting teachers, disobeying rules, sleeping in class, and being impolite in learning environments (Abdellatif, 2022).

In exploring the integration of morality, ethics, and performance in education, one key aspect is the avoidance of academic dishonesty, such as cheating and plagiarism. Through interviews, it was revealed that 11 out of 12 students preferred achieving high grades through cheating rather than earning lower grades honestly. This was confirmed by the physics teacher interviewed, who noted that cheating is a common practice among students, particularly in physics assignments, tests, and exams.

The importance of integrating moral and ethical aspects into instructional design in physics arises from the shifting social and technological dynamics in society. Students not only need a deep understanding of physics concepts but must also be equipped with moral and ethical skills to face potential challenges in the future. Instructional designs that focus on character development can help create a learning environment that fosters students' morality and ethics. Based on this background, this study will experiment on "The Effect of Implementing the *Archerys ID Model* Instructional Design on the Moral Character, Ethics, and Learning Performance of Students at SMAN 12 Padang in Physics Education."

Method

This study used a quantitative approach using a quasi-experimental method. The research design adopts a Nonequivalent Control Group Design, involving two classes: an experimental class and a control class. The experimental class receives treatment using the *Archerys ID* instructional design model in its learning process, while the control class follows a conventional model. Both classes undergo a pretest before the treatment, followed by a posttest to identify the differences in outcomes between the two groups.

The study used purposive sampling to select two classes as experimental and control groups, based on similar prior knowledge and equal instructional hours. Simple random sampling was applied to assign the groups, ensuring each class had an equal chance of selection to maintain objectivity and avoid bias. This design ensures that any differences in outcomes can be attributed to the intervention rather than pre-existing

knowledge or learning time differences. This study measures three variables: moral character, learning performance, and understanding of ethics.

In physics education, several issues can hinder the effectiveness of the teaching and learning process. Low student motivation and lack of engagement in class are major concerns, as students often fail to pay attention and are not actively involved in lessons. Additionally, academic dishonesty, such as cheating during assignments and exams, undermines the true learning objectives. The lack of integration of ethics, performance, and morality in lessons reduces the overall value of the educational experience. Traditional, one-way teaching methods like lectures and problem-solving exercises also contribute to students' disinterest, making it difficult for them to connect the material with real-life phenomena.

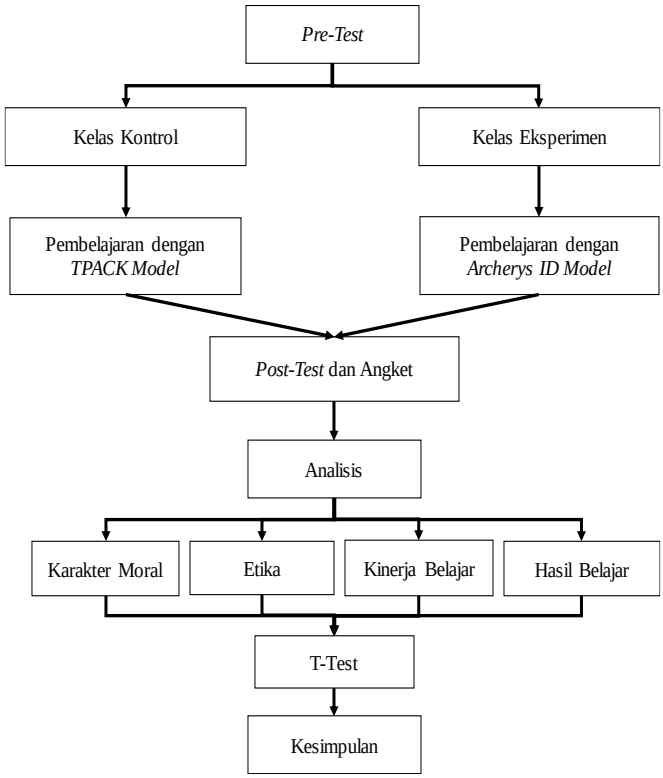

Figure 1. Research flow

The *Archerys ID* instructional design model offers a potential solution by focusing on moral integrity, ethics, and performance. This model emphasizes honest academic efforts, where students gain knowledge and skills through ethical learning practices. Research has shown that applying this model can significantly improve both learning outcomes and students' moral character. In this study, two classes will be used: an experimental group, which will implement the *Archerys ID Model*, and a control group, which will follow conventional learning methods. Pretests and posttests will measure changes in academic integrity, ethics, and performance, with periodic observations and interviews conducted throughout the study. Statistical analysis will be used to assess the effectiveness of the model on student learning and character development. Figure 1 will show the flow of this research.

Result and Discussion

Based on the data from the moral character questionnaire for the experimental and control classes, the hypothesis was then tested. Prerequisite tests for analysis included normality tests and homogeneity tests. Based on the prerequisite tests that were conducted, it was found that the moral character data were normally distributed and homogeneous. Therefore, hypothesis testing was performed using an independent sample t-test. The results of the hypothesis test on the moral character values showed a Sig. (2-tailed) value of 0.032, which is <0.05. Since the Sig. (2-tailed) value is less than 0.05, Ho is rejected and Ha is accepted.

The *Archerys ID Model* consists of three learning activities: introduction, core, and closing. In the introductory phase, several stages are implemented, including giving attention, relevance reinforcement, and increased confidence. Moral integration begins in the "giving attention" phase, where students are encouraged to pray and express gratitude to Allah SWT. According to Isnawati's research, habitual prayer is part of character education, fostering values such as honesty. Prayer also embodies religious values, a key aspect of character education (Isnawati et al., 2023). Shariff's study suggests that religiosity influences moral decision-making and behavior (Shariff, 2015). Gratitude through prayer is seen as moral affection, serving as a moral barometer, motivator, and reinforcement (Rusdi, 2016; Santoso et al., 2023).

The study highlights that moral character development in students is significantly influenced by the habit of praying and giving thanks before lessons begin (Indriyani et al., 2024; Putranta, 2023; Supriadi et al., 2020). Attendance discipline is also part of the "giving attention" phase, where students actively check attendance before starting the material. Febriyanto's research emphasizes the importance of character education and discipline in schools, formed through consistent daily habits (Febriyanto et al., 2020). Suryono's study reveals that attendance discipline not only improves academic performance but also enhances moral character, fostering responsibility, honesty, and self-control (Suryono et al., 2020). This aligns with Nadiatul's findings, which show that attendance discipline is cultivated through habitual practices such as greetings, group prayers, and consistently following school rules, helping instill strong moral character in students (Nadiatul & Nur Aisyah, 2024).

The moral significance observed in the results of this study is influenced by the "increased confidence" stage of the *Archerys ID* Model, where educators ensure students that learning goals are achievable. Research by Christensen and Knezek shows that higher confidence is closely linked to improved student morality, as it enhances their enjoyment of the learning process, improving their attitudes toward learning (Christensen & Knezek, 2020; Suryanto et al., 2023). Similarly, Brambilla's research indicates that increased morality, particularly related to honesty and confidence, contributes to greater self-assurance in acting ethically, reinforcing positive moral perceptions (Brambilla et al., 2021). These studies support the idea that boosting student confidence in the *Archerys ID Model* leads to increased morality. Additionally, the model integrates moral lessons by connecting information to real-world contexts, such as using vectors in daily applications like Google Maps or airplane routes. Balakrishnan's research highlights that relating school content to real-life situations helps students confront ethical dilemmas authentically, thereby enhancing morality (Balakrishnan, 2017). Smith's study aligns with this, emphasizing that connecting learning to real-world contexts helps students grasp the moral and social relevance of the knowledge, reinforcing moral values (Smith et al., 2022). Thus, the moral character development in classes using the *Archerys ID Model* is influenced by contextual learning.

The integration of praise in the *Archerys ID Model* learning approach aims to enhance students' moral character. Research by Knochel shows that praise and recognition not only improve learning outcomes but also foster mutual respect and acknowledgment of each student's uniqueness, contributing to their moral development (Knochel et al., 2022). Similarly, Osguthorpe's study highlights that specific praise effectively boosts academic engagement and helps reduce disciplinary disparities among students from diverse backgrounds (Osguthorpe & Jensen, 2023). Afrianingsih's research also supports the positive impact of verbal rewards, such as praise, on students' confidence, independence, and moral awareness (Afrianingsih & Damayanti, 2023). Farisa's study further demonstrates the *Archerys ID* Model's effectiveness in improving both learning outcomes and students' moral character, making it a valuable instructional design alternative for educators (Farisa et al., 2023).

Based on the data from the pretest and posttest ethics questionnaires for both the experimental and control classes, the hypothesis was then tested. The analysis prerequisite tests included normality and homogeneity tests. From these prerequisite tests, it was found that the ethics data were normally distributed and homogeneous. Therefore, the hypothesis was tested using an independent sample t-test. Based on the results of the hypothesis testing for students' ethics scores, a Sig. (2-tailed) value of 0.023 was obtained, which is <0.05. Since the Sig. (2-tailed) value is less than 0.05, Ho is rejected and Ha is accepted. This indicates that there is a significant influence of the Archery's ID instructional design model on students' ethics in the vector material for Grade XI, Semester I at SMAN 12 Padang.

Research on the application of the Archery's ID Model demonstrates a significant impact on students' ethics. The model integrates ethical values throughout the learning process, particularly through teacher attention during lesson introductions, which has been shown to enhance student ethics by fostering positive relationships (Kim, 2021). Brickhill's research supports this, emphasizing the role of teacher attention and active student engagement in promoting student agency and academic integrity, which helps internalize values like honesty and responsibility (Brickhill et al., 2024). Similarly, Borremans found that personal interaction between teachers and students positively influences ethical behavior, including respect for school rules (Borremans et al., 2024).

Further ethical integration in the *Archerys ID Model* involves reviewing previously learned material, aimed at strengthening students' foundational understanding and connecting it to new concepts (Astalini et al., 2023). Sundararajan's research confirms that repeated review through testing improves long-term retention and academic achievement while also fostering better learning ethics (Sundararajan et al., 2017). Subakri adds that linking old and new knowledge subtly reinforces both comprehension and ethical values such as patience and perseverance in the learning process (Subakri, 2020).

The *Archerys ID Model* promotes student participation and inquiry during the learning process by encouraging interaction between educators and students. This model helps students discover and analyze information independently, fostering both academic growth and ethical development. Research by Gillies supports this, showing that increased student participation not only enhances academic skills but also fosters ethical values such as responsibility, collaboration, and respect for others' ideas (Gillies, 2023). Similarly, Iglesias and Tejada found that autonomous learning encourages critical reflection and responsibility, further enhancing ethical behavior (Iglesias & Tejada, 2024). Wathon also links student participation and inquiry with the development of ethical values, as students become more accountable for their learning process and adhere to ethical norms (Wathon, 2024).

Additionally, the model incorporates conflict as a learning strategy, challenging students' initial understanding of concepts. For instance, students might

face situations that contradict their prior knowledge, prompting them to critically reevaluate their beliefs. This not only deepens their understanding of physics but also strengthens intellectual ethics, such as openness to new ideas and intellectual honesty. Nadya found that managing conflict constructively can enhance students' ethical awareness (Nadya, 2020), while Golubeva demonstrated that engaging in conflict situations encourages collaboration and ethical reflection, contributing to ethical growth (Golubeva, 2023). The Relevance Reinforcement learning stage involves discussions about new knowledge gained by students, which proves useful for addressing real-life situations and challenges. Engaging in these discussions fosters deep reflection, enhancing both academic understanding and critical thinking skills, as well as improving students' ethics. Hussein's research supports this, showing that by discussing new knowledge, students communicate, listen, and respect others' viewpoints, promoting the development of empathy, conflict resolution skills, and an appreciation for moral values, all of which are crucial in ethical decision-making (Hussein, 2021).

Based on the data from the pretest and posttest ethics questionnaires for both the experimental and control classes, hypothesis testing was then conducted. The prerequisite analysis included tests for normality and homogeneity of the data. Based on the prerequisite tests that were performed, it was determined that the data from both classes was normally distributed and homogeneous. Therefore, the independent sample t-test was used to test the hypothesis. The results of the hypothesis testing showed a significance value (Sig. 2-tailed) of 0.031, which is less than 0.05. Since the Sig. (2-tailed) value is < 0.05, the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. This indicates that there is a significant effect of the *Archerys ID* instructional design model on the learning performance of students in the vector material for grade XI, Semester I, at SMAN 12 Padang. In other words, the use of the *Archerys ID* instructional design model effectively influences the students' learning performance in the context of vector material learning in this class.

The integration of students' learning performance in the *Archerys ID Model* is applied by contextualizing vector material to real-life scenarios. Students are given questions and examples of how vectors appear in everyday activities like walking, running, and driving, which helps them visualize concepts like speed and acceleration. This approach encourages discussions on finding other real-world applications of vectors, aiming to increase students' interest and critical thinking skills, which in turn improves their learning performance. Supporting studies, such as those by Nanda Putri and Toheri, highlight that contextual, problem-based learning enhances critical thinking and problem-solving skills (Putri et al., 2024; Toheri et al., 2020), while research by Nur shows that students with formal thinking levels perform better in contextual learning environments (Nur et al., 2020).

The use of humor in education is an effective strategy to enhance student learning performance. By creating a relaxed and comfortable classroom atmosphere, humor allows students to feel more at ease and open to absorbing the material presented. It also helps reduce tension and stress, leading to improved focus and motivation among students. A positive classroom environment encourages greater student engagement in discussions and learning activities, ultimately strengthening their understanding of concepts and critical thinking skills.

Research supports the idea that appropriate use of humor not only improves classroom dynamics but also maximizes learning outcomes. Studies by Embalzado and Sajampun highlight that humor provides physiological and emotional benefits, such as alleviating stress and fostering a better educator-student relationship (Embalzado & Sajampun, 2020). Similarly, Chowdhury's research indicates that students view humor as a positive and beneficial teaching tool (Chowdhury, 2021), while Çarkıt's study involving Turkish teachers reveals that many educators incorporate humor to enhance motivation and make lessons more engaging (Çarkıt & Canalıcı, 2021).

Discussing the future benefits of the material being studied plays a crucial role in enhancing students' learning performance. When students understand how the knowledge and skills they acquire will be useful in real life or their careers, their intrinsic motivation increases. This understanding helps them connect theory to practice, encouraging active participation and engagement in the learning process. Clear discussions about the real-world applications of the material also make it easier for students to retain and apply what they have learned (Karo-Karo et al., 2023; Utaminingsih et al., 2023).

Research by Zajda, Parrish, Gilmore, and Liu supports this, highlighting how understanding future benefits boosts autonomy, competence, and motivation, which directly improves learning outcomes. Additionally, the *Archerys ID Model* emphasizes instilling confidence in students that their learning goals will be achieved. This belief enhances their motivation, focus, and commitment while reducing anxiety, creating a more positive and effective learning environment (Gilmore, 2018; Liu et al., 2024; Parrish, 2022; Zajda, 2023).

One key step in the *Archerys ID Model* is ensuring that students believe the learning objectives can be achieved. This confidence significantly impacts their

learning performance by fostering self-assurance, motivation, and commitment. When students are convinced they can reach their goals, they become more focused, enthusiastic, and consistent in completing tasks and overcoming challenges. This belief also reduces anxiety and uncertainty, creating a more positive and conducive learning environment, ultimately enhancing the quality and effectiveness of their performance.

Research by Janson supports this, showing that students who believe in their ability to succeed tend to be more diligent and consistent in their efforts, which positively influences academic outcomes (Janson & Janke, 2024). Similarly, Miller's study found that this confidence helps reduce anxiety when facing challenging tasks, encouraging students to take risks in learning and try new things without fear of failure (Miller et al., 2021).

The instructional design of the Archerys ID Model in this study was proven to have a significant impact on students' moral character, ethics, and learning performance. The instructional design, developed based on the ARCS model, is supported by research on ARCS. Studies show that innovative learning models, such as Problem-Based Learning (PBL) and motivational approaches (e.g., the ARCS strategy), can significantly enhance scientific attitudes, critical thinking skills, and foster stronger character and responsibility in students' learning experiences (Iftitah et al., 2023; Priska et al., 2021; Suryanto et al., 2023).

Conclusion

The results of the independent T-Test analysis indicate that the use of the Archerys ID Model significantly improves various aspects of students' learning in physics for grade XI at SMAN 12 Padang. In terms of moral character, a significance value of 0.032 was found, showing that students taught with the Archerys ID Model exhibited significantly higher moral character compared to those taught with the TPACK instructional design. Similarly, student ethics also showed a significant improvement, with a significance value of 0.023, indicating that the Archerys ID Model resulted in better ethical behavior than the TPACK model. Additionally, the study revealed that the Archerys ID Model significantly enhanced students' learning performance, with a significance value of 0.031. Overall, these findings suggest that the Archerys ID Model is more effective in improving students' moral character, ethics, and learning performance in physics compared to the TPACK instructional design model.

Acknowledgments

The researcher extends heartfelt thanks to the supervisor for the valuable criticism and feedback provided throughout the preparation of this article. A sincere thank you to SMA Negeri 12 Padang, particularly the F phase class, for their support and contributions to this research. The researcher is also deeply grateful to the advisors and examiners for their constructive input and suggestions.

Author Contributions

MEP developed the research concept, designed the methodology, analyzed the data, authored the article, and conducted the research activities. D, FY, and Z reviewed and assessed each stage of the article writing process and the research execution. And thanks to PS and MRP for their assistance in reviewing this article.

Funding

This research was funded by personal funds.

Conflicts of Interest

The authors declare no conflict of interest.

References

Abdellatif, M. S. (2022). Moral Intelligence and Its Relationship to Academic Entitlement and Academic Performance of Secondary School Students. *European Journal of Educational Research, 11*(4), 2291-2301. Retrieved from http://files.eric.ed.gov/fulltext/EJ1356837.pdf

Afrianingsih, A., & Damayanti, S. (2023). The Effectiveness of Providing Rewards and Punishment for Moral Development of Early Childhood. *Child Education Journal*, *5*, 73–84. https://doi.org/10.33086/cej.v5i2.4223

Astalini, Darmaji, Kurniawan, D. A., Septi, S. E., & Perdana, R. (2023). Effect of Using Inquiry Learning Model on Creative Character and Hard Work Character in High School. *Jurnal Penelitian Pendidikan IPA*, *9*(8), 6321–6329. https://doi.org/10.29303/jppipa.v9i8.3043

Atikah, D., Negeri Padang, U., Hamka, J., Tawar Bar, A., Padang Utara, K., Padang, K., & Barat, S. (2023). Hubungan Self-efficacy dengan Perilaku Menyontek pada Siswa Saat Ujian di SMA Negeri 1 Kecamatan Suliki. *Journal on Education*, *05*(03), 5776–5784. https://doi.org/10.31004/joe.v5i3.1338

Balakrishnan, V. (2017). *Teaching and Learning for Real-Life: The Application of Real-Life Moral Dilemma Discussion (Re-LiMDD) for Classroom Interaction BT - Teacher Empowerment Toward Professional Development and Practices: Perspectives Across Borders* (pp. 195–210). Springer Singapore. https://doi.org/10.1007/978-981-10-4151-8_13

Borremans, L. F. N., Koomen, H. M. Y., & Spilt, J. L. (2024). Fostering teacher–student relationship-building competence: a three-year learning trajectory for initial pre-primary and primary teacher education. *Frontiers in Education*, *9*(March), 1–11. https://doi.org/10.3389/feduc.2024.1349532

Brambilla, M., Sacchi, S., Rusconi, P., & Goodwin, G. P. (2021). *Chapter Four - The primacy of morality in impression development: Theory, research, and future directions* (Vol. 64, pp. 187–262). Academic Press. https://doi.org/10.1016/bs.aesp.2021.03.001

Brickhill, M., Andrews, G., & Nieuwoudt, J. (2024). Developing Student Agency Towards Academic Integrity Through an Educative Approach: Exploring Students' Experiences and Perspectives. *Journal of Academic Ethics*. https://doi.org/10.1007/s10805-024-09567-y

Çarkıt, C., & Canalıcı, M. (2021). a Qualitative Research on the Use of Humor in Turkish Teaching in Secondary School. *Psycho-Educational Research Reviews*, *3*(3), 0–3. https://doi.org/10.52963/perr_biruni_v10.n3.09

Chowdhury, F. (2021). Can Laughter Lead to Learning?: Humor as a Pedagogical Tool. *International Journal of Higher Education*, *11*(1), 175. https://doi.org/10.5430/ijhe.v11n1p175

Christensen, R., & Knezek, G. (2020). Indicators of middle school students' mathematics enjoyment and confidence. *School Science and Mathematics*, *120*(8), 491–503. https://doi.org/10.1111/ssm.12439

Darmansyah., &. Darman, R. . (2022). The Development Of The Archerys Instructional Design Model Arcs-Motivational-Based In Efforts To Reduce Academic Dishonesty In Higher Education. *International Conference Publication*. https://doi.org/10.59175/pijed.v3i2.326

Embalzado, H., & Sajampun, P. (2020). Perspectives of Students in Thailand on the Use of Humor in University Classroom. *International Education Studies*, *13*(4), 17. https://doi.org/10.5539/ies.v13n4p17

Farisa, W., Darmansyah, D., & Zuwirna, Z. (2023). Efektivitas Penerapan Archerys ID Model Berbasis ARCS Motivational dalam Pembelajaran Informatika di SMP Negeri 39 Padang. *Jurnal Pendidikan Tambusai, 7*(2), 17927-17932. Retrieved from https://mail.jptam.org/index.php/jptam/article/view/9203%0Ahttps://mail.jptam.org/index.php/jptam/article/download/9203/7521

Febriyanto, B., Patimah, D. S., Rahayu, A. P., & Masitoh, E. I. (2020). Pendidikan karakter dan nilai kedisiplinan peserta didik di sekolah. J*urnal Elementaria Edukasia, 3*(1), 75-81. https://dx.doi.org/10.31949/jee.v3i1.2107

Fendler, R. J., Yates, M. C., & Godbey, J. M. (2023). Proof that a simple positive approach can reduce student cheating. *Journal of Instructional Pedagogies*, *28*, 1–19. Retrieved from http://files.eric.ed.gov/fulltext/EJ1383405.pdf

Gillies, R. M. (2023). Using Cooperative Learning to Enhance Students' Learning and Engagement during Inquiry-Based Science. In *Education Sciences* (Vol. 13, Issue 12). https://doi.org/10.3390/educsci13121242

Gilmore, L. (2018). *Understanding and Supporting Student Motivation for Learning BT - Positive Schooling and Child Development: International Perspectives* (pp. 69–92). Springer Singapore. https://doi.org/10.1007/978-981-13-0077-6_4

Golubeva, I. (2023). Raising Students' Self-Awareness of Their Conflict Communication Styles: Insights from an Intercultural Telecollaboration Project. In *Societies* (Vol. 13, Issue 10). https://doi.org/10.3390/soc13100223

Hussein, B. (2021). Addressing Collaboration Challenges in Project-Based Learning: The Student's Perspective. In *Education Sciences* (Vol. 11, Issue 8). https://doi.org/10.3390/educsci11080434

Iftitah, N., Arsyad, M., & Palloan, P. (2023). The Effect of Problem-Based Learning Model and Self-Efficacy Towards Creative Thinking Ability of Class XI MIPA Students at SMA Negeri 11 Takalar. *Jurnal Penelitian Pendidikan IPA*, *9*(12), 10808–10815. https://doi.org/10.29303/jppipa.v9i12.4734

Iglesias, P., & Tejada, J. (2024). Practice as Research through Inquiry-Based Learning: A Pedagogical Intervention with Music Students in Higher Education. In *Education Sciences* (Vol. 14, Issue 7). https://doi.org/10.3390/educsci14070738

Indriyani, L., Ningsih, K., & Yuniarti, A. (2024). The Effectiveness of Character-Based Comic Media on Environmental Conservation Sub-Material Learning Outcomes. *Jurnal Penelitian Pendidikan IPA*, *10*(2), 506–515. https://doi.org/10.29303/jppipa.v10i2.6148

Isnawati, Peranginangin, H., & Rahim, A. (2023). Pembiasaan Berdoa Sebelum Belajar Untuk Pendidikan Karakter Siswa Kelas IV Madrasah Ibtidaiyah Muhammadiyah Sukajati Haurgeulis. *JISIP: Jurnal Ilmu Sosial Dan Pendidikan*, *7*(2), 1055–1062. https://doi.org/10.58258/jisip.v7i2.4715/http

Janson, M. P., & Janke, S. (2024). The influence of e-learning on exam performance and the role of achievement goals in shaping learning patterns. *International Journal of Educational Technology in Higher Education*, *21*(1), 56. https://doi.org/10.1186/s41239-024-00488-9

Karo-Karo, S., Pardede, M., Simamora, P. R. T., & Tamba, L. (2023). Implementation of Character Education for Students in the Era of Digitalization. *Jurnal Penelitian Pendidikan IPA*, *9*(SpecialIssue), 1402–1407. https://doi.org/10.29303/jppipa.v9ispecialissue.6

424

Kim, J. (2021). The quality of social relationships in schools and adult health: Differential effects of student–student versus student–teacher relationships. In *School Psychology* (Vol. 36, Issue 1, pp. 6–16). Educational Publishing Foundation. https://doi.org/10.1037/spq0000373

Knochel, A. E., Blair, K. S. C., Kincaid, D., & Randazzo, A. (2022). Promoting Equity in Teachers' Use of Behavior-Specific Praise With Self-Monitoring and Performance Feedback. *Journal of Positive Behavior Interventions*, *24*(1), 17–31. https://doi.org/10.1177/1098300720951939

Liu, Y., Ma, S., & Chen, Y. (2024). The impacts of learning motivation, emotional engagement and psychological capital on academic performance in a blended learning university course. *Frontiers in Psychology*, *15*(May), 1–12. https://doi.org/10.3389/fpsyg.2024.1357936

Miller, A. L., Fassett, K. T., & Palmer, D. L. (2021). Achievement goal orientation: A predictor of student engagement in higher education. *Motivation and Emotion*, *45*(3), 327–344. https://doi.org/10.1007/s11031-021-09881-7

Nadiatul, F., & Nur Aisyah. (2024). The Urgency Of Character Education In Improving Student Discipline In Madrasah. *Proceeding of International Conference on Education, Society and Humanity*, *02*(01), 554–559. https://doi.org/10.2991/978-2-38476-020-6_8

Nadya, F. (2020). Kemampuan Resolusi Konflik Interpersonal dan Urgensinya pada Siswa. *Sosietas Jurnal Pendidika Sosiologi*, *10*(1), 775–790. Retrieved from https://ejournal.upi.edu/index.php/sosietas/article/view/26007%0Ahttps://ejournal.upi.edu/index.php/sosietas/article/download/26007/12292

Nur, A. S., Waluya, S. B., Rochmad, R., & Wardono, W. (2020). Contextual learning with Ethnomathematics in enhancing the problem solving based on thinking levels. *JRAMathEdu (Journal of Research and Advances in Mathematics Education)*, *5*(3), 331–344. https://doi.org/10.23917/jramathedu.v5i3.11679

Osguthorpe, R. D., & Jensen, B. (2023). Transformative Practice and the Moral Rewards of Teaching. *Teacher Education Quarterly*, *50*(3), 7–29. Retrieved from http://files.eric.ed.gov/fulltext/EJ1398287.pdf

Parrish, N. (2022). *To Increase Student Engagement, Focus on Motivation*. Retrieved from https://www.edutopia.org/article/to-increase-student-engagement-focus-on-motivation/

Pertiwi, N. P., Saputro, S., Yamtinah, S., & Kamari, A. (2024). Enhancing Critical Thinking Skills through STEM Problem-Based Contextual Learning: An Integrated E-Module Education Website with Virtual Experiments. *Journal of Baltic Science Education, 23*(4), 739-766. Retrieved from http://files.eric.ed.gov/fulltext/EJ1437899.pdf

Priska, M., Peni, N., & Wao, Y. P. (2021). Development of Acid-Base Devices Integrating ARCS Motivation Strategy in Problem-Solving Learning Model Scientific Attitude and Critical Thinking Skills of Students. *Jurnal Penelitian Pendidikan IPA*, *7*(SpecialIssue), 288–296. https://doi.org/10.29303/jppipa.v7ispecialissue.1126

Putranta, H. (2023). Moral Development of Senior High School Students in Physics Learning Based on Traditional Game. *Jurnal Penelitian Pendidikan IPA*, *9*(5), 2521–2532. https://doi.org/10.29303/jppipa.v9i5.2352

Radulović, B., Dorocki, M., Ninković, S. O., Stojanović, M., & Adamov, J. (2023). the Effects of Blended Learning Approach on Student Motivation for Learning Physics. *Journal of Baltic Science Education*, *22*(1), 73–82. https://doi.org/10.33225/jbse/23.22.73

Reysen, R., Degges-White, S., & Reysen, M. (2017). Exploring the Interrelationships Among Academic Entitlement, Academic Performance, and Satisfaction With Life in a College Student Sample. *Journal of College Student Retention: Research, Theory & Practice*, *22*, 152102511773529. https://doi.org/10.1177/1521025117735292

Rusdi, A. (2016). Syukur dalam Psikologi Islam dan Konstruksi Alat Ukurnya. *Jurnal Ilmiah Penelitian Psikologi: Kajian Empiris & Non-Empiris*, *2*(2), 37–54. Retrieved from https://www.researchgate.net/publication/316824938

Santoso, S., Hidayat, T., & Pariyanto, P. (2023). Assessment of the Implementation of the Religious Character Strengthening Programe. *Jurnal Penelitian Pendidikan IPA*, *9*(4), 1954–1959. https://doi.org/10.29303/jppipa.v9i4.3404

Shariff, A. F. (2015). Does religion increase moral behavior? *Current Opinion in Psychology*, *6*, 108–113. https://doi.org/10.1016/j.copsyc.2015.07.009

Smith, K., Maynard, N., Berry, A., Stephenson, T., Spiteri, T., Corrigan, D., Mansfield, J., Ellerton, P., & Smith, T. (2022). Principles of Problem-Based Learning (PBL) in STEM Education: Using Expert Wisdom and Research to Frame Educational Practice. In *Education Sciences* (Vol. 12, Issue 10). https://doi.org/10.3390/educsci12100728

Stiles, B., Pan, M., Labeff, E., & Wong, N. (2019). The role of academic entitlement in college cheating: A comparison between China and the United States.

Research in Higher Education, *33*. Retrieved from http://files.eric.ed.gov/fulltext/EJ1178415.pdf

Subakri. (2020). Peran Guru Pandangan Al-Ghazali. *Jurnal Pendidikan Guru*, *1*(2), 63–75. https://doi.org/10.47783/jurpendigu.v1i2.165

Sundararajan, N., Adesope, O., & Trevisan, D. (2017). Rethinking the Use of Tests: A Meta-Analysis of Practice Testing. *Review of Educational Research*, *87*. https://doi.org/10.3102/0034654316689306

Supriadi, S., Wildan, W., & Laksmiwati, D. (2020). Implementasi Model Pembelajaran Berbasis Masalah dan Pengaruhnya terhadap Perkembangan Karakter Mahasiswa. *Jurnal Penelitian Pendidikan IPA*, *6*(1), 63–68. https://doi.org/10.29303/jppipa.v6i1.323

Suryanto, A., Saliman, S., & Sudrajat, S. (2023). Weakness of Character Education in Indonesian Teenager. *Jurnal Penelitian Pendidikan IPA*, *9*(5), 3869–3874. https://doi.org/10.29303/jppipa.v9i5.3721

Suryono, A., Sudaryatie, ., Kussujaniatun, S., & Hartati, A. S. (2020). The Determinant of Student Attendance Discipline in Lectures with Psychological Approach to Formation of Discipline Character Through Punishment and Motivation: Survey on Management Department Students of the Faculty of Economics and Business UPN "Veteran. *Icbeem*, 221–227. https://doi.org/10.5220/0009961502210227

Toheri, Winarso, W., & Haqq, A. A. (2020). Where exactly for enhance critical and creative thinking: The use of problem posing or contextual learning. *European Journal of Educational Research*, *9*(2), 877–887. https://doi.org/10.12973/eu-jer.9.2.877

Utaminingsih, E. S., Puspita, M. A., Ihsandi, A., Intania, B. Y., Prasetya, A. T., & Ellianawati, E. (2023). Systematic Literature Review: The Role of Character-Based Digital Literacy in 21st Century Learning in Elementary Schools. *Jurnal Penelitian Pendidikan IPA*, *9*(10), 829–840. https://doi.org/10.29303/jppipa.v9i10.4858

Wathon, A. (2024). Meningkatkan Kemampuan Berfikir Kreatif Mahasiswa Melalui Model Pembelajaran Inkuiri. *Open Journal Systems*, *7*(2), 1–17. Retrieved from https://oj.lapamu.com/index.php/sim/article/view/232

Wider, C., & Wider, W. (2023). Effects of Metacognitive Skills on Physics Problem-Solving Skills Among Form Four Secondary School Students. *Journal of Baltic Science Education*, *22*(2), 357–369. https://doi.org/10.33225/jbse/23.22.257

Xing, H., Zhai, Y., Han, S., Zhao, Y., Gong, W., Wang, Y., Han, J., & Liu, Q. (2022). the Measuring Instrument of Primitive Physics Problem for Upper-Secondary School Students: Compilation and Exploration. *Journal of Baltic Science Education*, *21*(2), 305–324. https://doi.org/10.33225/jbse/22.21.305

Zajda, J. (2023). *The Impact of Motivation on Students' Engagement and Performance BT - Globalisation and Dominant Models of Motivation Theories in Education* (pp. 127–138). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-42895-1_9