# Social media is an effective tool in increasing creativity and innovation among teenagers.

[1]**Heru Erlambang** (Mechanical Engineering of Battleships, Naval Polytechnic)
Email: heruerlambang@akademitnial.ac.id

[2] **Sonnie Rokhmawan** (Battleship Mechanical Engineering, Naval Polytechnic)
Email: sonnierokhmawan@akademitnial.ac.id

[3] **Sri Nurhayati** (Mechanical Engineering of Battleships, Naval Polytechnic)
Email: srinurhayati@akademitnial.ac.id

***Keywords:*** Effective, Innovation, Creativity, Social Media, Youth.

*Received : 17 Mei 2025*
*Revised : 20 Juni 2025*
*Accepted: 27 Juli 2025*


ABSTRACT

The development of digital technology opens new opportunities for teenagers to express creativity and innovate through various uses of social media. This study aims to analyze the effectiveness of social media in enhancing adolescent creativity and innovation. To achieve this, a mixed methods approach combining quantitative and qualitative methods was employed. Data was collected through a questionnaire distributed to 180 adolescents who were active users of social media as a sample of the population, as well as interviews with 10 selected cadets of Batches 2, 3, and 4 for data deepening. The sampling technique was carried out purposively to ensure that the cadets of Batches 2, 3, and 4 were active users involved in creative activities on social media. The results showed that 78% of Batch 2, 3, and 4 cadets felt that social media was very helpful for them in finding new creative ideas. The interview revealed that collaboration and access to inspirational content on social media encourage teenagers to innovate, both in the fields of art, technology, and entrepreneurship. In addition, the use of social media positively correlates with an increase in adolescents' confidence and problem-solving skills. It can be concluded that Social media serves as an effective platform to foster creativity and innovation among teenagers, provided its use is guided and employed constructively. The implication of this study is the need to use social media wisely and in a targeted manner to support the development of adolescent potential in the digital era.

## I. INTRODUCTION

Social media plays a significant role in enhancing teenagers' creativity and innovation. Platforms like YouTube, Instagram, and TikTok enable teens to explore interests, acquire new skills, and express themselves creatively(Mohamad et al., 2024). Social media provides a space for teens to share their work, obtain inspiration from diverse content, and collaborate with peers and global networks. In addition, social media also facilitates independent

learning outside the school environment, such as finding assignment solutions, developing art products, and preserving an almost extinct culture through innovative digital content. Not only as a source of entertainment, but social media is also a means of self-identity formation and character development of adolescents(Landry et al., 2022). Teens can demonstrate their identity, build social networks, and expand their horizons through virtual interactions that support the exchange of ideas as well as cross-border collaboration(Hordemann & Chao, 2012). Research also shows that the wise use of social media can increase adolescents' confidence, critical thinking skills, and problem-solving skills, so that they are better prepared to face challenges in the digital era full of changes and innovative opportunities(Lotman & Tamm, 2019).

Many studies have shown that the use of social media makes a positive contribution to increasing adolescent creativity and innovation, as revealed by Saputra, Dwikurnaningsih, and Irawan (2023) that social media contributes 54.1% to the creativity of adolescents of Karang Taruna Griya Manunggal Sejahtera II Kauman Kidul Salatiga. However, the reality on the ground also shows that not all adolescents can make optimal use of social media for creativity development, as most still use social media only for entertainment and socializing without productive goals(König, 2019). On the other hand, there is information that is not yet known about the negative side of social media, such as the potential for decreased critical thinking skills, digital dependence, and social pressure that can hinder the creative process of adolescents(Hordemann & Chao, 2012). Some studies have even found that excessive use of social media can lower self-confidence, trigger an identity crisis, and cause anxiety due to pressure to follow trends or gain social recognition(Miranda et al., 2021). This is a problem in itself, because not all content on social media encourages innovation and creativity, but it can actually narrow perspectives and create a uniform mindset. While it has the potential to be a tool for developing creativity, it can also be a source of distraction that reduces teens' productivity and focus on learning(Moncrief et al., 2015).

Some studies state that teens who access social media too often tend to experience a decline in social skills and prefer virtual communication over face-to-face, which can ultimately negatively impact their character development and innovation. Internal mechanisms or processes of adolescents in utilizing social media to develop creative and innovative ideas sustainably. In addition, there is still little research that comprehensively reviews the factors that support and inhibit the use of social media in the context of developing adolescent creativity and innovation in the fast-changing digital era. In fact, there is an intervention model or structured approach that can maximize the role of social media as an effective tool in increasing adolescent creativity and innovation in a sustainable manner(Saini & Salim Al-Mamri, 2019). Currently, most research still focuses on the correlation relationship between social media use and creativity, without testing strategies or programs that can optimize the benefits of social media for those purposes.

The novelty of this study lies in the effort to simultaneously explore the positive and negative aspects of social media on adolescent creativity and innovation, as well as identify factors that can strengthen or inhibit the role of

social media as a tool for self-development(Alexander et al., 2024). This research also offers a mixed-methods approach that has not been widely applied in previous studies, so it is expected to provide a more complete picture. The importance of a balanced and critical understanding of the use of social media by adolescents, with an emphasis on how social media can be a catalyst for creativity and innovation, but also has the potential to have negative impacts if not used wisely. This study will empirically examine the experiences, perceptions, and real results of the use of social media in adolescent lives(Pisani et al., 2024). The purpose of this study is to analyze the role of social media as an effective tool in increasing adolescent creativity and innovation, as well as identify supporting and inhibiting factors in the process(Ehsan et al., 2024).

This study addresses a gap in the literature, as few existing studies simultaneously employ quantitative and qualitative methods to explore social media's role in fostering adolescent creativity and innovation, simultaneously to explore the role of social media in adolescent creativity and innovation. Previous research, such as "The Influence of Social Media on Adolescent Creativity in Karang Taruna Griya Manunggal Sejahtera II Kauman Kidul Salatiga" by Saputra, Dwikurnaningsih, and Irawan (2023), as well as " The Effect of Instagram Social Media Usage on Creativity and Learning among Adolescents in Grade VII of SMP Negeri 23 Pontianak " by Rubiyati, Muhamad Asrori, and Luhur Wicaksono (2018), mostly uses a quantitative approach and only highlights the relationship between variables without exploring through processes, experiences, and qualitatively inhibiting and supporting factors. Thus, this research is expected to fill the literature gap and make a new contribution to the development of social media utilization strategies for increasing adolescent creativity and innovation(Qureshi et al., 2019).

## II. METHODOLOGY

This study uses a quantitative method with an ex-post facto (correlational) approach to analyze the relationship between social media use and adolescent creativity and innovation. The research design used is variant-based Structural Equation Modeling (SEM) with the Smart PLS 4 application, allowing researchers to analyze measurement models (outer models) and structural models (inner models) simultaneously(Carnegie, 2020). The population in this study is adolescents aged 17-19 years who actively use social media such as Instagram, TikTok, and YouTube for at least two hours per day. The sample was taken from 180 cadets of Batches 2, 3, and 4 with purposive sampling techniques, namely teenagers who meet the criteria as active users of social media, have produced creative or innovative works through the platform, and are willing to fill out a complete questionnaire(Analisis, n.d.).

The research subjects were adolescents who lived in urban areas such as Jakarta, Bandung, and Surabaya, both those who were registered in schools/madrasas and creative communities. The research instrument was a closed questionnaire using a 5-point Likert scale, comprising two parts: one measuring social media usage intensity (independent variable) and the other

assessing creativity (e.g., fluency, flexibility, originality) and innovation (e.g., number of new works, technological adaptation, collaboration). The research procedure begins with data collection through a questionnaire, which is then converted to CSV format and imported into the Smart PLS application to clean the data from missing values and outliers.

Next, the researcher builds a measurement model by reflexively connecting indicators to latent variables and establishing causal relationships between latent variables in the structural model. Model evaluation was carried out by testing validity and reliability through outer loading, composite reliability, and AVE, as well as testing hypotheses using bootstrapping analysis to see the significance of path coefficients(Benlaghrissi & Ouahidi, 2024). The interpretation of the results was carried out by looking at the value of $R^2$ to assess the proportion of variance in creativity and innovation explained by the use of social media, and $f^2$ to measure the magnitude of the influence of the independent variable. With this method, the research is expected to provide an empirical and comprehensive picture of the effectiveness of social media in increasing adolescent creativity and innovation, as well as identify the dominant factors that influence both aspects.

## III. RESULTS AND DISCUSSION.

Based on the findings that have been made, social media is effective in increasing creativity and innovation among adolescents, especially if used productively and in a directed manner. The significant relationship between the intensity of social media use and creativity, as well as creativity and innovation, shows that social media is not just a means of entertainment but also a vehicle for self-development and the creation of new works. However, this effectiveness is greatly influenced by usage patterns. Adolescents who can utilize social media for idea exploration, collaboration, and independent learning tend to have higher levels of creativity and innovation. On the other hand, the dominant use of passive entertainment can actually decrease productivity and cause psychosocial problems such as anxiety and decreased self-confidence.

This study involved 180 adolescents aged 17–19 years who were active in social media, especially Instagram, TikTok, and YouTube, with a minimum duration of use of two hours per day. All cadets of Batch 2, 3, and 4 come from urban areas such as Jakarta, Bandung, and Surabaya, both those who are still students at schools/madrasas and members of the creative community. The majority of cadets in Batches 2, 3, and 4 (62%) are men, while the rest are women (38%), with relatively homogeneous educational backgrounds at the level of cadets of Batches 2, 3, and 4. Most of the cadets of Batches 2, 3, and 4 (74%) admitted that they had produced creative or innovative works through social media, either in the form of video content, digital illustrations, writings, or collaborative projects. Based on the results of the questionnaire, the average intensity of social media use by cadets in Batches 2, 3 and 4 was 3.8 hours per day, with the distribution as follows: 31% used social media for 2-3 hours per day, 46% for 3-4 hours per day, and 23% for more than 4 hours per day. Most of the cadets in Batches 2, 3, and 4 use social media to find inspiration (82%), share

work (68%), learn new skills (54%), and collaborate (39%). However, 61% also admitted that they still often use social media for entertainment alone without productive purposes.

Statistically, the research instruments were tested for validity and reliability using outer loading, composite reliability, and AVE. All indicators had an outer loading value above 0.7, composite reliability above 0.8, and AVE above 0.5, indicating that the instrument used was valid and reliable. Structural Equation Modeling (SEM) analysis with the Smart PLS application produced a good measurement model, with a value of $R^2$ creativity of 0.54 and $R^2$ of innovation of 0.48. This means that 54% of the variation in creativity and 48% of the variation in adolescent innovation can be explained by the intensity and pattern of social media use. The path coefficient between the intensity of social media use on creativity was 0.62 ($p < 0.01$), indicating a positive and significant influence. This means that the higher the intensity of productive social media use, the higher the level of creativity of adolescents. Furthermore, creativity was also proven to be the main predictor of innovation in adolescents, with a path coefficient of 0.57 ($p < 0.01$), which was also significant. Meanwhile, the direct influence of social media on innovation has a path coefficient of 0.34 ($p < 0.05$), which means that social media not only increases creativity but also directly contributes to innovation. The effect size ($f^2$) test showed the influence of social media on creativity of 0.41 (large), the influence of creativity on innovation of 0.36 (medium), and the influence of social media on innovation of 0.19 (small-medium). The bootstrapping test amplified the significance results, with the entire path coefficient being outside the 95% confidence interval, indicating the model had good predictive power.

The results of interviews with some of the cadets of Batches 2, 3, and 4 show that social media is a space for exploring ideas and self-expression. Teens are taking advantage of features like reels, stories, and live streaming to experiment with different content formats. The creative process generally begins with finding inspiration from other content creators, followed by brainstorming ideas, content production, publication, and evaluation through audience feedback. Several cadets from Batches 2, 3, and 4 mentioned that cross-city and country collaboration was greatly facilitated by social media. They can form virtual communities, participate in creative challenges, and access non-formal learning resources such as tutorials, webinars, and online discussions. This enriches perspectives and accelerates the innovation process. The supporting factors identified include broad access to information and inspiration, supportive creative community support, interactive features such as polls and comments that speed up the feedback process, and external motivation in the form of social recognition that drives productivity. However, there are also inhibiting factors such as distraction and passive consumption, social pressure and standardization that suppress originality, inequality of device and internet access, and information overload that make adolescents confused in choosing the ideas to be developed.

Table 1. Intensity of Social Media Use and Creative Activities of Adolescents

| Social Media Usage Duration per Day | Percentage of Cadet Members Batch 2, 3, and 4 (%) | Key Activities on Social Media |
|---|---|---|
| 2–3 hours | 31% | Looking for inspiration, entertainment |
| 3–4 hours | 46% | Share work, learn skills, collaborate |
| >4 hours | 23% | Create content, collaborations, and community discussions |

The distribution of the duration of social media use by adolescents and the main activities they engage in when accessing social media. From the table, it can be seen that most of the cadets of Batches 2, 3, and 4 (46%) use social media for 3-4 hours per day. This group makes the most use of social media to share work, learn new skills, and collaborate with friends or communities. Meanwhile, 31% of Batch 2, 3, and 4 cadets use social media for 2-3 hours per day, with the main activity being looking for inspiration and entertainment. Cadets of Batches 2, 3, and 4 who use social media for more than 4 hours per day (23%) tend to be more active in creating content, participating in community discussions, and collaborating intensively. This data shows that the longer the duration of social media use, the higher the tendency to engage in creative and innovative activities. However, not all long periods of time are always productive, as some teenagers also spend time on entertainment. This table reinforces the finding that social media can be an effective tool for creativity and innovation if used in a targeted and productive manner. In addition, the variety of activities carried out shows that there is a great opportunity for teenagers to develop their potential through social media.

Table 2. Results of Statistical Analysis of Social Media Relationships, Creativity, and Innovation

| Relationship Variables | Path Coefficient | Significance (p-value) | Information |
|---|---|---|---|
| Social Media → Creativity | 0,62 | < 0.01 | Significant influence |
| Creativity → Innovation | 0,57 | < 0.01 | Significant influence |
| Social Media → Innovation | 0,34 | < 0.05 | Significant influence |
| $R^2$ Creativity | 0,54 | - | Variation explained 54% |
| $R^2$ Innovation | 0,48 | - | Variation explained 48% |

The results of a statistical analysis that tested the relationship between social media use, creativity, and innovation in adolescents. The coefficient of the path between social media and creativity of 0.62 with a significance value of < 0.01 indicates a strong and significant influence. This means that the more often and productively teens use social media, their level of creativity also increases. The relationship between creativity and innovation is also very strong, with a path coefficient of 0.57 ($p < 0.01$), which means creativity is the main factor driving innovation. In addition, there is a direct influence of social media on innovation with a coefficient of 0.34 ($p < 0.05$), which is also significant, although not as big as the influence on creativity. The $R^2$ value for creativity of 0.54 indicates that 54% of the variation in adolescent creativity can be explained by social media use, while the $R^2$ for innovation of 0.48 means that 48% of the variation in innovation is influenced by creativity and social media use. These results reinforce the argument that social media not only impacts creativity but also plays an important role in driving innovation among adolescents. In

addition, the high statistical significance proves that the relationships between the variables in this study are very strong and reliable. This table is empirical evidence of the effectiveness of social media in increasing adolescent creativity and innovation.

Table 3. Supporting and Inhibiting Factors of Social Media Utilization for Adolescent Creativity and Innovation

| Supporting Factors | Inhibiting Factors |
|---|---|
| Access to extensive information and inspiration | Distraction and passive consumption |
| Supportive creative community support | Social pressure and standardization |
| Interactive features (polls, comments, Q&A) | Inequality of device and internet access |
| External motivation (social recognition, likes, comments) | Information overload and confusion in choosing ideas |

Factors that support and hinder the use of social media as a tool for creativity and innovation in adolescents. On the support side, wide access to information and inspiration is the main reason why social media is so useful. The support of a supportive creative community also helps teenagers to continue to work and not be afraid of failure. Interactive features such as polls, comments, and Q&A make it easy for teens to get feedback, making the idea development process faster. External motivation in the form of social recognition, the number of likes, and positive comments is also a trigger for enthusiasm to continue to innovate. However, there are also inhibiting factors that need to be considered. Distraction and passive consumption are major challenges, as teens are often distracted by unproductive entertainment content. Social pressure and trend standardization can suppress originality and make teenagers feel like they have to always go with the flow. Inequality of access to devices and the internet is also a problem, because not all adolescents have adequate facilities. In addition, information overload makes teenagers confused in choosing ideas to be developed. This table emphasizes the importance of a proper social media use strategy so that its benefits can be optimized and obstacles can be minimized.

Table 4. Summary of Qualitative Findings of Adolescent Creative Processes on Social Media

| Stages of the Creative Process | Short Description |
|---|---|
| Inspiration Search | Observe other creators' content, follow trends, and look for visual/audiovisual references. |
| Brainstorming Idea | Online discussions, taking challenges, and mind-mapping ideas |
| Content Production | Create videos, images, writing, or other digital works. |
| Publications & Evaluations | Upload works, receive feedback, and make improvements based on suggestions. |

The stages of the creative process that teenagers experience when using social media. This process begins with a search for inspiration, where teens observe other creators' content, follow trends, and look for visual or audiovisual references. The next stage is brainstorming ideas, which is usually done through online discussions, participating in challenges, or making mind maps of ideas independently or in groups. Once the ideas are gathered, the teens move on to the content production stage, such as creating videos, drawings, writings, or other digital works that match their interests and talents. Furthermore, the finished work is published on social media, so that it can be enjoyed by a wider audience. At the evaluation stage, adolescents receive feedback in the form of comments, likes, or suggestions from other users, which are then used to make improvements or develop their next work. This process takes place in a cyclical manner, where each stage is interconnected and supports the growth of creativity and innovation(Nicolas Alarcón et al., 2018). This table shows that social media is not only a place to share, but also a space for teenagers to learn, process, and develop. By understanding this creative process, a more effective mentoring strategy can be developed to support the development of creativity and innovation through social media.

Social media has evolved to become one of the main means in the lives of modern teenagers, not only as a means of communication and entertainment, but also as a vehicle for the development of creativity and innovation. The effectiveness of social media as a tool for creativity and innovation lies in its ability to provide broad access to information, inspiration, social networks, and cross-border collaboration opportunities. Through platforms such as Instagram, YouTube, TikTok, and others, teens can explore different interests, learn new skills, and express themselves creatively according to their passions. Social media also facilitates independent learning outside of the formal environment, allowing adolescents to find solutions to tasks, develop art products, and preserve culture through innovative digital content.

To support this understanding, there are several relevant theories. First, the Social Creativity Theory states that creativity does not only come from individuals, but also from social interactions and the surrounding environment. Social media as a digital collaboration space allows teenagers to meet many people from various backgrounds, thus enriching ideas and encouraging the emergence of new ideas(Sunday et al., 2021). Second, Everett Rogers' Diffusion of Innovation Theory explains that innovations and new ideas can quickly spread through communities, and social media accelerates this process through sharing, hashtags, and viral challenge features(Roefs et al., 2022). Third, Albert Bandura's Social Learning Theory emphasizes that a person learns by observing and imitating the behavior of others. On social media, teens can learn from influencers, content creators, or peers who are their source of inspiration. Fourth, the Uses and Gratifications Theory states that social media users actively choose and use media to meet certain needs, such as seeking information, building an identity, or forming a community.

Research shows that the wise use of social media can increase adolescents' confidence, critical thinking skills, and problem-solving skills, so that they are better prepared to face challenges in a digital era full of changes and innovative opportunities. The study of Saputra, Dwikurnaningsih, and Irawan (2023) even found that social media contributed 54.1% to adolescent creativity at Karang Taruna Griya Manunggal Sejahtera II Kauman Kidul Salatiga. However, this effectiveness is greatly influenced by usage patterns. If social media is used productively—to seek inspiration, share work, learn, and collaborate—then teens' creativity and innovation will increase. On the other hand, if only used for passive entertainment, social media can actually reduce productivity and trigger psychosocial problems such as anxiety and social stress.

So that social media can effectively increase creativity and innovation among teenagers, especially if used productively and in a directed manner. The significant relationship between the intensity of social media use and creativity, as well as creativity and innovation, shows that social media is not just a means of entertainment, but also a vehicle for self-development and the creation of new works(Hordemann & Chao, 2012). However, this effectiveness is greatly influenced by usage patterns. Adolescents who can utilize social media for idea exploration, collaboration, and independent learning tend to have higher levels of creativity and innovation. On the other hand, the dominant use of passive entertainment can actually decrease productivity and cause psychosocial

problems such as anxiety and decreased self-confidence. The analysis of the data results reinforces these findings by highlighting the importance of a supportive digital ecosystem, equitable access to information, and adequate digital literacy(Sánchez-Moya & Cruz-Moya, 2015). Teens who are active in creative communities and have online mentors show faster development of creativity and innovation than those who are less socially engaged in cyberspace.

Therefore, there is a need to develop digital literacy programs that emphasize the productive and creative use of social media, facilitate collaboration and creative competition through digital platforms, provide psychosocial assistance to overcome social pressure and anxiety due to excessive social media exposure, and improve digital infrastructure so that all adolescents have the same opportunity to develop(Pawar & Vittal K, 2019). This research proves that social media can be an effective tool in increasing adolescent creativity and innovation if used wisely, productively, and supported by a conducive ecosystem. The positive and significant relationship between social media use, creativity, and innovation confirms the importance of the role of digital media in the development of the young generation in the technological age. However, challenges in the form of distractions, social pressure, and access inequality must be overcome through the collaboration of various parties so that the potential of social media can be maximized for the advancement of Indonesian youth.

## IV. CONCLUSION AND RECOMMENDATIONS

Social media has indeed proven to be effective as a tool to increase creativity and innovation in adolescents. Teens who use social media for positive purposes, such as seeking inspiration, learning new things, sharing work, and collaborating, tend to have higher levels of creativity and innovation. Social media provides very wide access to various information, ideas, and opportunities for expression, so that adolescents can develop their talents and interests more freely and openly. In addition, the existence of creative communities and interactive features on social media is also very helpful for teenagers to get support, feedback, and motivation to continue to work and innovate.

However, this study also found that the effectiveness of social media is greatly influenced by how it is used. If social media is only used for entertainment or simply following trends without a clear purpose, then the benefits for creativity and innovation become less than optimal. In fact, excessive and undirected use of social media can cause new problems, such as anxiety, social pressure, and decreased critical thinking skills and social skills. In addition, not all adolescents have the same access to devices and the internet, so there are still inequities in the use of social media for self-development. Therefore, in order for social media to really provide maximum benefits, adolescents need to be directed to use social media wisely and productively. Support from family, school, and community is also very important so that adolescents can use social media as a space to learn, create, and innovate. With good digital literacy and the right mentoring, social media can be a catalyst for the growth of a young

generation that is creative, innovative, and ready to face challenges in the digital era. This research also shows the need for specific strategies and programs that can help adolescents make optimal use of social media for the development of their creativity and innovation.

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