

Exploring the Relationship between Digital Competence and Social Isolation in Adolescents

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Abstract

The present study aimed to examine the relationship between Digital Competence and Social Isolation among secondary school adolescents in Krishna District of Andhra Pradesh. The study was conducted using the Survey Method on a sample of 150 adolescents selected from rural and urban secondary schools. Two self-developed tools, namely the *Questionnaire on Digital Competence of Adolescents* and the *Questionnaire on Social Isolation of Adolescents*, were used for data collection. The data were analysed using Mean, Standard Deviation, *t*-test, and Pearson's Product Moment Correlation. The findings of the study revealed that girls possessed significantly higher digital competence and experienced higher levels of social isolation than boys. Rural adolescents were found to have higher digital competence, whereas urban adolescents experienced greater social isolation. The study further revealed a significant moderate negative relationship between digital competence and social isolation among adolescents. The findings suggest that balanced and responsible digital competence can help adolescents improve communication, social connectedness, and emotional well-being. The study highlights the need for educational institutions, teachers, and parents to promote healthy digital practices and supportive social environments for adolescents in the digital age.

Keywords: Digital Competence, Social Isolation, Adolescents, Secondary School Students, Digital Literacy, Emotional Well-being, Gen Z, Social Connectedness

1. Introduction

Adolescents in the present Gen Z world are growing up in a rapidly changing digital environment where technology, social media, and online communication strongly influence their nature and behaviour. Unlike previous generations, Gen Z adolescents are highly connected through smartphones, the Internet, and social networking platforms (Roni, 2025). They are technologically skilled, quick to access information, and more adaptable to digital learning and communication systems. Their lifestyles, interests, and daily activities are largely shaped by digital media, making them more aware of global trends, social issues, and cultural diversity (Ding et al., 2023).

Simultaneously, adolescents' behaviour has changed significantly in terms of communication and social interaction. Many adolescents today prefer virtual communication through messages, social media, and online platforms rather than direct face-to-face interactions. While this has increased connectivity and digital competence, it has also reduced personal interaction and emotional bonding in some cases (Uhls et al., 2024). Excessive dependence on digital devices may lead to behavioural issues, such as reduced

attention span, impatience, emotional stress, loneliness, and social isolation. Adolescents are increasingly influenced by online validation, peer pressure, and virtual social expectations.

Despite these challenges, Gen Z adolescents possess several positive characteristics, such as creativity, confidence, adaptability, and openness to new ideas. They are more expressive, independent, and socially conscious than earlier generations. Their exposure to diverse knowledge and experiences enables them to think critically and actively participate in social and educational activities (Csobanka, 2016). Therefore, it is important for parents, teachers, and society to guide adolescents in balancing digital engagement with healthy social interactions and emotional well-being so that technology becomes a tool for positive development rather than a source of isolation.

2. Digital Competence

In the twenty-first century, digital technology has become an inseparable part of everyday life, influencing communication, education, employment, entertainment and social interaction. Adolescents, often referred to as “digital natives,” are growing up in an environment where digital devices and online platforms play a central role in learning and social engagement. In this context, digital competence has emerged as an essential life skill that enables individuals to effectively and responsibly use digital technologies for personal, academic, and social purposes.(Martinovic et al., 2018)

Digital competence encompasses the knowledge, skills, attitudes, and ethical understanding necessary to engage with digital technologies confidently, critically, creatively, and safely. It includes the ability to access information, communicate through digital platforms, create digital content, solve problems using technology, and maintain online safety and digital citizenship. According to the European Commission, digital competence involves not only technical skills but also critical thinking, collaboration, information evaluation, and responsible participation in digital environments.(Asagar, 2025)

The rapid expansion of online learning platforms, social media networks, and digital communication tools has increased the importance of digital competence in adolescents. Educational institutions are increasingly integrating digital technologies into teaching-learning processes, making digital competence necessary for academic achievement and lifelong learning. Adolescents with higher digital competence are often better equipped to access educational resources, develop communication skills, and actively participate in a digital society.(Kreuder et al., 2024)

However, despite its numerous advantages, the growing dependence on digital technology has raised concerns regarding adolescents’ social and emotional well-being. Excessive online engagement may reduce face-to-face interactions, leading to feelings of loneliness, social withdrawal, and social isolation. While digital competence can enhance connectivity and communication, it may also contribute to unhealthy patterns of digital dependence if not appropriately balanced (Makrodimitri & Tragou, 2023). Therefore, understanding the relationship between digital competence and social isolation has become an important area of research in education and psychology.

The study of digital competence among adolescents is particularly significant because adolescence is a critical developmental stage characterised by identity formation, emotional sensitivity, and social relationship building. Examining how digital competence influences adolescents’ social experiences can provide valuable insights for educators, parents, and policymakers to promote healthy digital practices and balanced social development. (Maria Rodriguez-Perez et al., 2021)Hence, this study explores the concept of digital competence and its association with social isolation among adolescents in the contemporary digital era.

3. Social Isolation in Adolescents

Social isolation among adolescents refers to a condition in which young individuals experience limited social interaction, emotional disconnection, and a lack of meaningful relationships with family members, friends, peers, and society. Adolescence is an important developmental stage characterised by emotional growth, identity formation, and the need for social belonging. Healthy social relationships during this period play a crucial role in developing self-confidence, emotional stability, communication skills, and overall well-being (Devi, 2024). However, when adolescents feel disconnected from others or fail to establish supportive social relationships, they may experience social isolation, loneliness, and emotional distress.

In the present digital era, social isolation among adolescents has become a growing concern owing to rapid technological advancement and excessive use of digital devices. Although social media and online communication platforms provide opportunities for virtual interactions, they may sometimes reduce direct face-to-face communication and meaningful social engagement (Wu et al., 2015). Many adolescents spend long hours on smartphones, online games, and social networking sites, which can limit family interactions and participation in real-world social activities. As a result, adolescents may feel emotionally detached, despite being virtually connected with others.

Several factors contribute to social isolation among adolescents, including academic pressure, family problems, peer rejection, low self-esteem, excessive screen time, and stress. Adolescents who experience social isolation often show behavioural and emotional symptoms, such as sadness, anxiety, poor concentration, lack of confidence, reduced participation in social activities, and difficulty in forming relationships (Devi, 2024). In some cases, prolonged social isolation may negatively affect mental health, academic performance, personality development and emotional adjustment. It may also increase the risk of depression, loneliness, and unhealthy behavioural patterns.

Despite these challenges, social isolation among adolescents can be reduced through appropriate guidance, emotional support, and healthy social engagement. Parents, teachers, and educational institutions play important roles in creating supportive environments that encourage communication, collaboration, participation in co-curricular activities, and positive peer relationships. Promoting the balanced use of digital technology, emotional literacy, social skills, and face-to-face interaction can help adolescents develop healthy social connections and emotional well-being. Therefore, understanding and addressing social isolation is essential for ensuring holistic development of adolescents in the modern digital age (Almerza & Al-Obiade, 2024).

4. Teacher Role

A digitally competent teacher plays a significant role in supporting adolescents in the modern world. Such teachers possess the knowledge, skills, and attitudes required to use digital technologies effectively in teaching, communication, assessment, and student guidance. Adolescents today are highly exposed to digital devices, online platforms, and social media; therefore, teachers who are digitally competent can guide their productive and responsible use (Gökbulut et al., 2024). By integrating digital tools, multimedia resources, online learning platforms, and interactive activities into the classroom, teachers can create engaging and learner-centred educational experiences that match the interests and learning styles of Gen Z adolescents.

Digitally competent teachers also help adolescents develop critical thinking, digital literacy, online safety awareness, and responsible digital behaviour (Vinay Kumar, 2026). They educate students about the

ethical use of technology, cyber safety, digital citizenship, and the importance of balancing online and offline lives. Such teachers can also identify signs of digital addiction, emotional stress, or social isolation among adolescents and provide appropriate guidance and emotional support (Mitina, 2024). Through collaborative learning activities, virtual discussions, educational applications, and interactive communication, teachers can encourage positive peer interactions and reduce feelings of loneliness and disconnection among students.

Furthermore, digitally competent teachers support the holistic development of adolescents by promoting creativity, communication skills, problem-solving abilities, and self-directed learning. They motivate students to use digital technology for academic growth, innovation, and skill development, rather than merely for entertainment (Kiryakova & Kozhuharova, 2024). By creating inclusive and supportive digital learning environments, teachers can improve students' confidence, participation and social engagement. Therefore, a digitally competent teacher is highly important in helping adolescents adapt successfully to the challenges and opportunities of the digital age while ensuring their educational, emotional, and social well-being (Vinay Kumar, 2026).

5. Relationship between Digital Competence and Social Isolation in Adolescents

Digital competence and social isolation among adolescents are closely interconnected in the modern digital world. Digital competence refers to adolescents' ability to use digital technologies effectively, responsibly, and critically for communication, learning, problem-solving, and social interaction. In contrast, social isolation refers to a lack of meaningful social relationships and reduced emotional connections with others (Almerza & Al-Obiade, 2024). In today's technology-driven society, adolescents spend a significant amount of time engaging with digital devices, online learning platforms, and social media, making digital competence an important factor in their social experiences and interpersonal relationships.

On one hand, digital competence can positively reduce social isolation among adolescents by improving communication, collaboration, and social connectivity. Adolescents with good digital skills can effectively use online platforms to interact with peers, participate in group discussions, access educational resources, and maintain long-distance relationships (Mýlek et al., 2025). Digital competence also enables adolescents to express themselves creatively, engage in collaborative learning, and build social networks that enhance their sense of belonging and confidence in their abilities. During situations such as online learning or social restrictions, digital competence is especially valuable in maintaining social interaction and emotional support.

However, excessive dependence on digital technology may contribute to social isolation if digital competence is not balanced with healthy social behaviour. Adolescents who spend prolonged periods on social media, online gaming, or virtual environments may gradually reduce direct face-to-face interactions with family members and peers. In some cases, online communication may replace real-world relationships, leading to emotional loneliness, reduced interpersonal skills and social withdrawal. Although adolescents may appear socially connected online, they may still experience feelings of isolation, anxiety, and emotional disconnection in their real lives. Therefore, the relationship between digital competence and social isolation is complex, as technology can connect and isolate adolescents depending on how it is used (Bear et al., 2025).

Thus, the relationship between digital competence and social isolation highlights the importance of a balanced and responsible use of digital technology among adolescents. Proper guidance from parents,

teachers, and educational institutions can help adolescents use digital tools for learning, communication, and positive social engagement while avoiding unhealthy digital dependence. Promoting digital literacy, emotional intelligence, and face-to-face social interaction can ensure that digital competence contributes to adolescents' overall well-being, rather than increasing social isolation. Therefore, understanding this relationship is essential for supporting the healthy psychological, educational, and social development of adolescents in the digital era.

6. Need and Significance of the Study

In the digital age, social isolation among adolescents is closely connected to their level and pattern of digital competence. One major cause of social isolation is the excessive dependence on digital devices and online communication. Adolescents who spend long hours on social media, online games, and virtual platforms may gradually reduce their face-to-face interactions with family members, friends, and peers. Although digital competence enables adolescents to use technology effectively, improper or unbalanced use may lead to emotional disconnection and reduced participation in real-world social activities (Türk & Koçyiğit, 2025). Lack of parental guidance, poor digital literacy, cyberbullying, academic stress, and limited social skills also contribute to social isolation in adolescents.

Another important cause is the unequal development of digital competence among adolescents. Some adolescents possess advanced digital skills and actively participate in online communication, whereas others may lack confidence or awareness of using digital technologies. Adolescents with poor digital competence may feel excluded from peer groups, online learning environments, and digital social interactions, which can increase their feelings of loneliness and isolation (Gnambs & Hawrot, 2025). However, adolescents with high digital competence but excessive online involvement may develop virtual relationships at the cost of real-life emotional bonding and interpersonal communication.

The effects of social isolation related to digital competence can be seen in adolescents' emotional, psychological, social, and academic lives. Socially isolated adolescents often experience loneliness, anxiety, stress, low self-esteem, poor concentration and depression. They may exhibit reduced communication skills, a lack of emotional expression, and difficulty maintaining healthy relationships. Excessive digital engagement may also affect physical health through reduced physical activity, sleep disturbances, and unhealthy behavioural patterns (Almerza & Al-Obiade, 2024). Furthermore, social isolation negatively influences academic performance, classroom participation, and overall personality development.

However, digital competence can play a positive role in reducing social isolation when used responsibly and constructively. Adolescents with balanced digital competence can use online platforms for educational collaboration, communication, creativity and social support. Proper digital guidance from parents and teachers can help adolescents develop healthy online habits, emotional intelligence, and meaningful social interactions. Therefore, digital competence acts as both a contributing and protective factor in relation to social isolation, depending on how adolescents use digital technology in their daily lives.

7. Review of Related Literature

Recent studies have highlighted the growing importance of digital competence among adolescents in the context of digital socialization and educational development. Vikhman, Sibiryakov, and Skorinin (2022) examined the relationship between digital competence and intellectual abilities among adolescents. The study revealed that digital competence is significantly associated with verbal intelligence, critical thinking,

emotional intelligence, and cognitive reflection. The researchers emphasized that successful digital socialization requires the development of critical thinking and intellectual abilities. Their findings suggest that adolescents with higher digital competence are more capable of effectively navigating online environments and engaging in productive digital activities.

Several studies have also focused on the issue of social isolation among adolescents in the digital era. El-Asam, Colley-Chahal, and Katz (2023) investigated social isolation and online relationship risks among adolescents with special educational needs (SEN). The study found that socially isolated adolescents often use the internet as an alternative means of communication and emotional connection. However, adolescents with greater social isolation and limited parental support were more likely to encounter online relationship risks. Similarly, Jang and Park (2024) reported that different forms of social isolation significantly influence adolescents' physical activity and social participation. The study highlighted that socially isolated adolescents experience reduced social engagement and lower levels of healthy interaction, which may negatively affect their emotional and physical well-being.

Further evidence regarding the relationship between digital competence and social isolation was provided by Joo, Lee, and Kim (2023) and Saeful Majid (2025). Joo et al. (2023) found that individuals with active digital participation and adequate digital competence experienced lower levels of loneliness and social isolation compared to those with limited digital skills or passive online participation. Likewise, Saeful Majid (2025) observed that excessive digital engagement and digital social isolation significantly predicted depressive symptoms among adolescents. The study emphasized that although digital platforms increase online connectivity, they may also create emotional disconnection and loneliness when online interaction replaces meaningful real-life relationships. These studies collectively indicate that digital competence can both support and challenge adolescents' social well-being depending on the nature and balance of digital engagement.

Therefore, the present study is needed to examine the relationship between digital competence and social isolation among adolescents in the contemporary digital world.

The significance of the study lies in its contribution to educational, psychological, and social understanding of adolescent development in the digital age. The findings of the study may help teachers, parents, counsellors, and policymakers recognize both the positive and negative impacts of digital competence on adolescents' social life. The study can provide valuable insights for promoting healthy digital practices, balanced technology use, and meaningful social interaction among adolescents. It may also help educational institutions design digital literacy programs, emotional support strategies, and guidance activities to reduce social isolation and improve adolescents' overall well-being. Thus, the study is significant in promoting the healthy educational, emotional, and social development of adolescents in a rapidly changing technological society.

8. Objectives of the study:

1. To examine the Digital Competence of Adolescents with respect to:
 - Gender (Boys and Girls)
 - Locality (Rural and Urban)
2. To examine the Social Isolation among Adolescents with respect to:
 - Gender (Boys and Girls)
 - Locality (Rural and Urban)
3. To find out the relationship between Digital Competence and Social Isolation among Adolescents.

9. Hypotheses of the Study

1. There would be no significant difference in the Digital Competence of Adolescents with respect to Gender (Boys and Girls).
2. There would be no significant difference in the Digital Competence of Adolescents with respect to Locality (Rural and Urban).
3. There would be no significant difference in the Social Isolation of Adolescents with respect to Gender (Boys and Girls).
4. There would be no significant difference in the Social Isolation of Adolescents with respect to Locality (Rural and Urban).
5. There would be no significant relationship between Digital Competence and Social Isolation among Adolescents.

10. Methodology of the Study

The present study was conducted by adopting the Survey Method of research to investigate the relationship between Digital Competence and Social Isolation among adolescents. The sample for the study consisted of 150 secondary school adolescent students selected from various schools in Krishna District of Andhra Pradesh. The sample included both boys and girls belonging to rural and urban localities. The researcher used appropriate standardized tools/questionnaires to collect data related to Digital Competence and Social Isolation among adolescents. The collected data were analysed using suitable statistical techniques such as Mean, Standard Deviation, t-test, and Correlation analysis to interpret the relationship and differences among the selected variables.

11. Tools of the Study

For the purpose of the present study, two self-developed questionnaires were used by the researcher to collect the required data from secondary school adolescents. The first tool, namely the *Questionnaire on Digital Competence of Adolescents*, was developed and standardized by the researcher to measure the level of digital competence among adolescents. The tool consisted of 70 items covering five major dimensions: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety and Security, and Problem-Solving and Critical Thinking. The questionnaire was designed to assess adolescents' knowledge, skills, awareness, and responsible use of digital technologies in educational and social contexts. The second tool used in the study was the *Questionnaire on Social Isolation of Adolescents*, which was also self-developed and standardized by the researcher. This tool consisted of 62 items distributed under five dimensions, namely Emotional Isolation, Peer Relationships, Social Connectedness, Communication and Interaction, and Psychological Well-being and Self-Perception. The questionnaire was intended to assess the level of social isolation experienced by adolescents in relation to their emotional, social, and psychological conditions in the digital age. Both the tools were prepared carefully by the researcher to ensure their relevance, clarity, and suitability for the selected sample of the study.

12. Reliability and Validity of the Tools

The reliability and validity of both the tools developed by the researcher were established using appropriate statistical techniques. The reliability of the *Questionnaire on Digital Competence of Adolescents* and the *Questionnaire on Social Isolation of Adolescents* was determined through Cronbach's

Alpha method, and the obtained reliability coefficients were 0.80 and 0.76 respectively, indicating good internal consistency of the tools. The stability of the tools was further verified through the Test–Retest method, and the obtained values were 0.79 and 0.75 respectively, showing satisfactory reliability over time. The content validity of both the tools was established with the help of expert opinions, and the Content Validity Ratio (CVR) values were found to be 0.70 and 0.60 respectively, indicating that the items included in the tools were appropriate, relevant, and adequate for measuring the intended variables.

13. Statistical Tools Used for the Study

The collected data were analysed by using appropriate statistical techniques to achieve the objectives of the study. Inferential statistics such as the *t-test* were employed to find out the significant differences in Digital Competence and Social Isolation with respect to Gender (Boys/Girls) and Locality (Rural/Urban). In order to examine the relationship between Digital Competence and Social Isolation among adolescents, Karl Pearson’s Product Moment Correlation coefficient was used. These statistical tools helped the researcher to interpret and analyse the data systematically and scientifically.

14. Data analysis

Objective-1: To examine the Digital Competence of Adolescents with respect to:

- Gender (Boys and Girls)
- Locality (Rural and Urban)

Hypothesis-1: There would be no significant difference in the Digital Competence of Adolescents with respect to Gender (Boys and Girls).

Table 1. Comparison of the mean scores of the level of Digital Competence of Adolescents with respect to Gender.

| Variable Gender | Sample N | Mean | SD | SED | t-value | p value |
|-----------------|----------|--------|-------|------|---------|---------|
| Boys | 59 | 207.42 | 10.34 | 3.01 | 5.076* | 0.00 |
| Girls | 91 | 222.70 | 21.54 | | | |

* Significant at 0.05 level

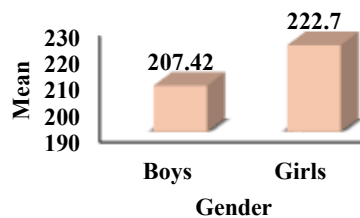


Figure 1. Comparison of the mean scores of the level of Digital Competence of Adolescents with respect to Gender

Interpretation

Table 1 shows the comparison of the mean scores of Digital Competence of Adolescents with respect to Gender. The mean score of girls (M = 222.70, SD = 21.54) was found to be higher than that of boys (M = 207.42, SD = 10.34). The obtained *t*-value was 5.076, which is significant at the 0.05 level ($p = 0.00$). Therefore, the null hypothesis stating that “There would be no significant difference in the Digital Competence of Adolescents with respect to Gender (Boys and Girls)” was rejected. The findings indicate

that girls possess significantly higher digital competence compared to boys among secondary school adolescents.

Hypothesis-2: There would be no significant difference in the Digital Competence of Adolescents with respect to Locality (Rural and Urban).

Table 2. Comparison of the mean scores of the level of Digital Competence of Adolescents with respect to Locality.

| Variable Locality | Sample N | Mean | SD | SED | t-value | p value |
|-------------------|----------|--------|-------|------|---------|---------|
| Urban | 39 | 211.56 | 19.46 | 3.32 | 2.09 | 0.038 |
| Rural | 111 | 218.49 | 12.20 | | | |

* Significant at 0.05 level

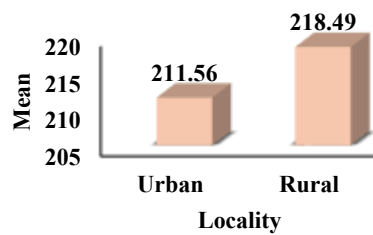


Figure 2. Comparison of the mean scores of the level of Digital Competence of Adolescents with respect to Locality

Interpretation

Table 2 shows the comparison of the mean scores of Digital Competence of Adolescents with respect to Locality. The mean score of rural adolescents (M = 218.49, SD = 12.20) was found to be higher than that of urban adolescents (M = 211.56, SD = 19.46). The obtained *t*-value was 2.09, which is significant at the 0.05 level ($p = 0.038$). Therefore, the null hypothesis stating that “There would be no significant difference in the Digital Competence of Adolescents with respect to Locality (Rural and Urban)” was rejected. The findings indicate that rural adolescents possess significantly higher Digital Competence compared to urban adolescents.

Objective-2: To examine the Social Isolation among Adolescents with respect to:

- Gender (Boys and Girls)
- Locality (Rural and Urban)

Hypothesis-3: There would be no significant difference in the Social Isolation of Adolescents with respect to Gender (Boys and Girls).

Table 3. Comparison of the mean scores of the level of Social Isolation of Adolescents with respect to Gender.

| Variable Gender | Sample N | Mean | SD | SED | t-value | p value |
|-----------------|----------|--------|-------|-------|---------|---------|
| Boys | 59 | 166.16 | 32.99 | 5.204 | 4.718* | 0.00 |
| Girls | 91 | 190.72 | 29.87 | | | |

* Significant at 0.05 level

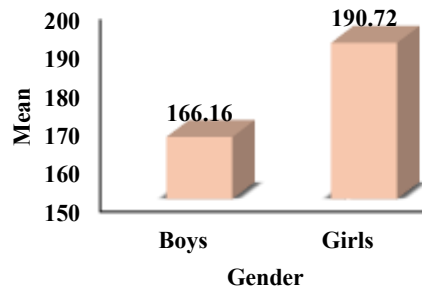


Figure 3. Comparison of the mean scores of the level of Social Isolation of Adolescents with respect to Gender

Interpretation

Table 3 shows the comparison of the mean scores of Social Isolation of Adolescents with respect to Gender. The mean score of girls (M = 190.72, SD = 29.87) was found to be higher than that of boys (M = 166.16, SD = 32.99). The obtained *t*-value was 4.718, which is significant at the 0.05 level (*p* = 0.00). Therefore, the null hypothesis stating that “There would be no significant difference in the Social Isolation of Adolescents with respect to Gender (Boys and Girls)” was rejected. The findings indicate that girls experience significantly higher levels of social isolation compared to boys among secondary school adolescents.

Hypothesis-4: There would be no significant difference in the Social Isolation of Adolescents with respect to Locality (Rural and Urban).

Table 2. Comparison of the mean scores of the level of Social Isolation of Adolescents with respect to Locality.

| Variable Locality | Sample N | Mean | SD | SED | t-value | p value |
|-------------------|----------|--------|-------|------|---------|---------|
| Urban | 39 | 184.82 | 15.21 | 2.76 | 4.38* | 0.00 |
| Rural | 111 | 172.74 | 10.69 | | | |

* Significant at 0.05 level

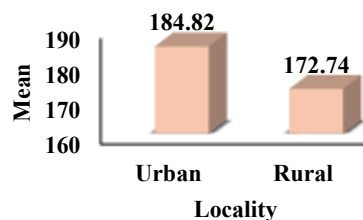


Figure 4. Comparison of the mean scores of the level of Social Isolation of Adolescents with respect to Locality.

Interpretation

Table 4 shows the comparison of the mean scores of Social Isolation of Adolescents with respect to Locality. The mean score of urban adolescents (M = 184.82, SD = 15.21) was found to be higher than that of rural adolescents (M = 172.74, SD = 10.69). The obtained *t*-value was 4.38, which is significant at the 0.05 level (*p* = 0.000). Therefore, the null hypothesis stating that “There would be no significant difference

in the Social Isolation of Adolescents with respect to Locality (Rural and Urban)” was rejected. The findings indicate that urban adolescents experience significantly higher levels of Social Isolation compared to rural adolescents.

Objective-3: To find out the relationship between Digital Competence and Social Isolation among Adolescents.

Hypothesis-5: There would be no significant relationship between Digital Competence and Social Isolation among Adolescents.

Table 5. Correlation between Digital Competence and Social Isolation among Adolescents

| Variables | Mean | SD | N | r-value | p-value |
|--------------------|--------|-------|-----|----------|---------|
| Digital Competence | 216.69 | 19.45 | 150 | -0.387** | 0.000 |
| Social Isolation | 181.07 | 33.28 | 150 | | |

Note. $p < .01$ level (2-tailed).

The obtained correlation coefficient ($r = -0.387$) indicates a moderate negative relationship between Digital Competence and Social Isolation among adolescents.

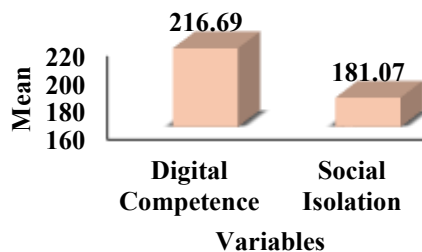


Figure 5. Mean between Digital Competence and Social Isolation among Adolescents

Interpretation

The correlation analysis was carried out to examine the relationship between Digital Competence and Social Isolation among Adolescents. The obtained Pearson’s Product Moment Correlation coefficient between Digital Competence and Social Isolation was found to be $r = -0.387$, which is negative and significant at the 0.01 level ($p = .000$). This indicates that there exists a moderate negative relationship between Digital Competence and Social Isolation among adolescents. Therefore, the null hypothesis stating that “There would be no significant relationship between Digital Competence and Social Isolation among Adolescents” was rejected. The findings suggest that as the level of Digital Competence increases, the level of Social Isolation among adolescents tends to decrease.

15. Findings of the Study

1. Girls were found to possess significantly higher Digital Competence than boys among secondary school adolescents.
2. Rural adolescents were found to possess significantly higher Digital Competence than urban adolescents.
3. Girls were found to experience significantly higher levels of Social Isolation than boys among secondary school adolescents.
4. Urban adolescents were found to experience significantly higher levels of Social Isolation than rural adolescents.

5. There was a significant moderate negative relationship between Digital Competence and Social Isolation among adolescents.

16. Discussion

The findings of the present study revealed that girls possessed significantly higher Digital Competence than boys among secondary school adolescents. This finding may be attributed to the increased academic engagement, communication practices, and active participation of girls in digital learning environments and social networking platforms. The result is consistent with the findings of Vikhman et al. (2022), who reported that digital competence is closely associated with intellectual abilities, critical thinking, and successful digital socialization among adolescents. The study further emphasized that effective use of digital technology enhances adolescents' ability to access information, communicate, and participate actively in online environments. The present study also found that rural adolescents demonstrated significantly higher digital competence than urban adolescents, which may be due to increasing digital awareness programs, online education exposure, and improved access to mobile technology in rural areas. The findings related to Social Isolation showed that girls experienced significantly higher levels of social isolation than boys, and urban adolescents experienced higher social isolation compared to rural adolescents. These findings indicate that adolescents in digitally intensive and socially competitive environments may experience emotional disconnection and reduced interpersonal interaction. The results support the observations of El-Asam et al. (2023), who found that socially isolated adolescents often rely on online communication as an alternative means of interaction and emotional support. Similarly, Jang and Park (2024) reported that different forms of social isolation negatively influence adolescents' social participation and well-being. Urban adolescents may experience greater academic pressure, reduced family interaction, and excessive digital engagement, which could contribute to increased feelings of loneliness and isolation.

The correlation analysis of the present study revealed a significant moderate negative relationship between Digital Competence and Social Isolation among adolescents. This suggests that adolescents with better digital competence may be able to use technology more effectively for communication, learning, collaboration, and social interaction, thereby reducing feelings of isolation. The findings are supported by Joo et al. (2023), who reported that active digital participation and higher digital competence were associated with lower levels of loneliness and social isolation. The result also partially aligns with Saeful Majid (2025), who highlighted that unhealthy digital engagement and emotional disconnection in online environments can contribute to depressive symptoms and isolation among adolescents. Therefore, the present study indicates that balanced and responsible digital competence can serve as a protective factor against social isolation by promoting meaningful communication, social connectedness, and emotional well-being among adolescents.

17. Educational Implications

1. Schools should organize digital literacy and digital competence training programs to help adolescents use technology effectively, responsibly, and safely for educational and social purposes.
2. Teachers should integrate collaborative and interactive digital learning activities in classrooms to promote healthy communication, social connectedness, and meaningful peer interaction among adolescents.

3. Educational institutions should provide counselling and emotional support programs to identify and reduce social isolation, loneliness, and psychological stress among adolescents.
4. Parents and teachers should guide adolescents in maintaining a healthy balance between online engagement and face-to-face social interaction to prevent excessive dependence on digital devices.
5. Curriculum planners and policymakers should include digital citizenship, online safety, emotional well-being, and responsible technology usage as important components of school education to support the holistic development of adolescents.

18. Conclusion

The present study examined the relationship between Digital Competence and Social Isolation among secondary school adolescents in Krishna District of Andhra Pradesh. The findings revealed significant differences in Digital Competence and Social Isolation with respect to gender and locality. Girls were found to possess higher digital competence and experience higher levels of social isolation compared to boys, while rural adolescents showed higher digital competence and urban adolescents experienced greater social isolation. The study further revealed a significant moderate negative relationship between Digital Competence and Social Isolation, indicating that better digital competence may help adolescents reduce feelings of isolation through effective communication, collaboration, and social engagement. The study highlights the importance of promoting balanced and responsible use of digital technology among adolescents to support their educational, emotional, and social well-being in the modern digital era.

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