

POST-COM II Project Impact and Outcomes: Analysis of Digitalisation Anxiety, Learning Motivation and Workshop Feedback

This document provides an overview of the digital anxiety study and feedback from two mobility weeks conducted within the Nordplus Junior project POST-COM II (NPJR-2025/10210) during the 2025-2026 academic year. The project involved two partner schools: Tartu Raatuse School from Estonia and Giljaskóli in Akureyri, Iceland. All the analysis is made by Lauri Kõlamets (Tartu Raatuse School).

Full title of the project

Promoting Critical Thinking For Lowering Down the Post-Covid communication Anxiety II (POST-COM II)

Nordplus+ junior project aim, content and focus

Teenagers are particularly sensitive to changes in the rhythm of their daily lives and social habits. Studies conducted after the COVID-19 pandemic have once again highlighted that adolescents are among the most vulnerable population groups, as social isolation and loneliness can contribute to the development of anxiety and depressive symptoms. In order to address post-COVID uncertainty and reduce social anxiety, it is essential to strengthen both public and interpersonal communication while encouraging more positive social interactions.

In this context, students need to first learn about, understand, and recognize the role of communication (not only in general but also at the interpersonal level) in their everyday lives. Building on this need, the current project aims to reduce communication-related anxiety in the post-COVID social environment among 13–16-year-old students, while simultaneously promoting critical thinking skills across individual, societal, and career dimensions.

At the same time, rapidly evolving digital technologies and the dynamic growth of social media have created new challenges. These developments enable the rapid shaping of people's attitudes, beliefs, and behaviours, often within seconds. In an increasingly globalised and digitalised world, individuals cannot possess complete knowledge across all domains such as society, science, and culture. As a result, people rely heavily on information distributed through mass media and social media, where influencers and content creators have gained significant power in reaching large audiences.

However, while access to information has expanded, individuals' ability to critically evaluate that information has not developed at the same pace. Many people struggle to assess the purpose of information (whether it is intended for entertainment, persuasion, or informed decision-making), as well as its reliability in terms of accuracy, authority, relevance, and timeliness. This challenge is further intensified by recent global events. The COVID-19

pandemic and the escalation of the Russian-Ukrainian war in February 2022 have introduced widespread uncertainty and stress, significantly affecting the mental health of European populations, including young students.

In this evolving context, effective communication has become more important than ever. It plays a key role in helping individuals make sense of the past, understand present challenges, and navigate future uncertainties. Moreover, strong communication skills can support better decision-making, enhance well-being, and reduce anxiety in everyday life.

Against this background, the project topic “Fake News” aims to develop students’ key competences in making evidence-based decisions when navigating complex and often controversial information environments. The increasing spread of misinformation poses serious risks, as misconceptions and fake news can negatively affect individuals, families, communities, and society as a whole.

To address these challenges, the project focuses on several key questions:

- Who produces fake news (e.g., individuals, peers, communities, private sector, public sector, and third sector actors)?
- What defines fake news, including its components, intentions, and characteristics such as bias, reliability, and accuracy?
- Why is fake news created from individual, social, and institutional perspectives?
- How can students identify, analyse, and evaluate the quality of news, facts, scientific data, and arguments?
- How does fake news influence emotions and behaviour, and how can it contribute to anxiety?

Project and research design

Table 1. Post-COM II project and research design Gantt table

Mount	Time	Intervention instrument	Project activity type			Data analysis + final report
			Mutual event	Online workshop	Exchange visit	
M1	Sept / 2025	X				
M2	Oct / 2025		X	X		
M3	Nov / 2025					
M4	Dec / 2025		X	X		
M5	Jan / 2026			X		

M6	Feb / 2026		X	
M7	Mar / 2026		X	X
M8	Arp / 2026			X
M9	May/ 2026	X		X
M10-M1 2	Jun-Aug / 2026			X

Introduction for the research instrument

The growing prevalence of digital technologies, along with their impact on how we live, work, and communicate, can generate feelings of tension and unease. This phenomenon, often referred to as digitalisation anxiety, pertains to both current and emerging technologies, encompasses the integration of digitalisation into daily life, and operates across multiple levels, including individuals, organisations, and society as a whole (Pfaffinger et al., 2020).

Pfaffinger et al. (2021) designed the DAS to measure digitalisation-related anxiety across multiple levels (individual, organisational, and societal), and validated it using samples consisting mainly of adults.

Digital Anxiety Scale (DAS) usage in the Nordplus+ Post-COM II project

In the Nordplus+ Post-COM II project, the Digitalisation Anxiety Scale (DAS) was used as one of main data collection instruments (table 1). Pfaffinger et al. (2021) DAS instrument consisted of 35 items with a 7-point Likert scale (1= strongly disagree and 7 = agree). Although it was originally developed and validated primarily with adult populations (e.g., employees and university students). In this case, however, the instrument was applied in a school context with 13-16-year-old students (n = 57). Data was collected with pre- and post-test strategy in September 2025 and May 2026. The DAS in September was used before the first activity as a pre-test and after the second students' exchange visit as a post-test.

Although the DAS was not originally intended for adolescents, the results of the present study indicate that the instrument performs well in a school context: internal consistency was very high, and all four factors retained their theoretical structure. This suggests that digitalisation anxiety as a construct is transferable to younger age groups, as tensions and uncertainties related to digitalisation are not limited to the workplace but also affect learning and everyday life.

At the same time, it should be considered that in a school setting some sources of anxiety may manifest differently (e.g., digital workload related to studying or teacher–student interaction). Therefore, interpretation of the results must take into account age-specific characteristics. Overall, the findings support that the DAS is a suitable and sensitive instrument for studying digitalisation anxiety among adolescents, although future research should focus on adapting it into a more education-specific measurement tool.

DAS instrument

In our project the Digitalisation Anxiety Scale (DAS) enables the analysis of students' digitalisation anxiety across multiple dimensions, distinguishing 4 key categories that represent different levels ranging from societal to individual and organisational.

General digitalisation anxiety (CAT 1) reflects students' broader perceptions of the consequences of digitalisation in society. These include concerns about security, privacy, artificial intelligence, and the potential control of technology over humans. In a school context, this dimension represents students' general attitudes toward digital technologies, which may influence their willingness to engage with technology in learning. Higher anxiety indicates a more critical or cautious stance toward digital tools.

Self-related digitalisation anxiety (CAT 2) refers to students' perceived personal ability to cope with digitalisation. This includes concerns about understanding new systems, keeping up with rapid technological change, and maintaining a sense of control. In the school context, this dimension is closely linked to digital competence and self-efficacy. Higher levels of anxiety suggest that students may feel overwhelmed or insufficiently prepared to use digital technologies effectively.

Interaction- and leadership-related digitalisation anxiety (CAT 3) describes how digitalisation affects communication, collaboration, and roles within an organisation. In a school setting, this refers to how students perceive the role of digital technologies in shaping teacher-student interaction and peer collaboration. Higher anxiety may indicate concerns that digital communication reduces clarity, limits social connection, or negatively impacts cooperative learning.

Implementation-related digitalisation anxiety (CAT 4) focuses on how digitalisation is introduced and managed within an organisation (school). This includes concerns about unclear systems, poorly planned changes, or a lack of transparency in implementation. In schools, this dimension reflects students' trust in how digital solutions are organised (i.e school policies, school curriculum) and applied. Higher anxiety suggests that digital changes may be perceived as confusing, inconsistent, or inadequately supported.

Analysis & results

According to Taber (2018), reliability coefficients of Cronbach $\alpha \geq .90$ are considered excellent, between .80 and .90 are good/high, and .70-.80 are acceptable. The reliability of the DAS instrument in the present sample was very high ($\alpha = 0.951$), indicating that the instrument measures a coherent and internally consistent construct. Each category's reliability is given in the following table 2.

A paired-samples t-test was used to compare the mean values of the pre- and post-categories (CAT 1-4), with standard deviations (SD) reported in parentheses. Statistical significance was determined based on the p-value threshold of $p \leq 0.05$ (indicating a 95% probability that the

result is not due to chance) and marked with *. Values with $p \leq 0.01$ (99% probability) were marked with **, and values with $p \leq 0.001$ were marked with *, indicating a 99.9% probability that the result is not due to chance. The results of the paired-sample t-test are given in table 3.

Table 2. Four DAS instrument categories: reliability measured with 13-16-year-old students (n = 57).

DAS categories	items	Cronbach α
General digitalisation anxiety (CAT 1)	1-15	.916
Self-related digitalisation anxiety (CAT 2)	16-23	.868
Interaction- and leadership-related digitalisation anxiety (CAT 3)	24-30	.837
Implementation-related digitalisation anxiety (CAT 4)	31-35	.827

Table 3. Students (n = 57): DAS paired-sample t-test mean values for pre- and post-categories.

DAS categories	pre-mean (SD)	post-mean (SD)	p-value
General digitalisation anxiety (CAT 1)	4.46 (.96)	4.42 (.88)	.301
Self-related digitalisation anxiety (CAT 2)	3.62 (1.11)	4.11 (1.04)	.007**
Interaction- and leadership-related digitalisation anxiety (CAT 3)	3.75 (1.12)	3.93 (1.11)	.539
Implementation-related digitalisation anxiety (CAT 4)	4.03 (1.08)	4.08 (0.93)	.699

Discussion & Conclusion

Overall, students' levels of digitalisation anxiety remained at a moderate level across all categories. In most dimensions, no statistically significant changes were observed, suggesting that the short-term intervention or time period did not lead to substantial changes in students' attitudes or perceived risks related to digitalisation.

However, one important exception emerged - anxiety at the individual level (CAT 2), where a statistically significant increase was observed. This indicates that while general societal and organisational attitudes remained relatively stable, students' personal perception of the impact of digitalisation changed notably.

CAT 1: General digitalisation anxiety (societal level)

No statistical significant may suggests that students' overall understanding of digitalisation-related risks at the societal level is relatively stable. As such attitudes are often shaped over a longer period through media, education, and social discourse, it is not surprising

that no substantial short-term changes were observed. It may also be assumed that adolescents' views on societal digital risks are already formed and not easily altered.

CAT 2: Self-related digitalisation anxiety (individual level)

This result is substantively important and indicates that **students experienced greater uncertainty regarding their digital skills and adaptability in the post-measurement** (Table 4). One possible interpretation is that the intervention or learning process highlighted the complexity and demands of digitalisation, thereby increasing self-awareness and perceived shortcomings. In other words, the increase in anxiety does not necessarily reflect negative development, but rather a more realistic self-assessment.

For 13-16-year-old students, often described as a “digital generation,” this finding suggests that the ability to use technology does not necessarily equate to deeper understanding or confidence. Therefore, these results emphasise the need to develop digital competence beyond technical skills, including critical thinking and confidence in dealing with digital environments.

Table 4. All category 2 (CAT 2) self-related digitalisation anxiety statements (N = 57)

Self-related digitalisation anxiety (CAT 2) statements	pre-mean (SD)	post-mean (SD)	p-value
16. I worry that I won't be able to keep up due to digitalisation	3.63 (1.49)	4.18 (1.58)	0.049*
17. I worry that I will be overwhelmed by the developments in the digitalised world	3.77 (1.64)	4.33 (1.59)	0.025*
18. I am afraid that I won't be able to understand new processes in the digital world	3.64 (1.66)	4.25 (1.63)	0.022*
19. I am concerned that I am expected to quickly understand new processes in the digital world	3.84 (1.50)	4.39 (1.46)	0.033*
20. I am skeptical about the use of digital technology at school	3.56 (1.66)	3.89 (1.68)	0.422
21. I am afraid of digitalisation as I feel helplessly exposed to it	3.20 (1.46)	3.81 (1.53)	0.028*
22. I worry that digitalisation will not facilitate my education	3.73 (1.36)	4.07 (1.45)	0.222
23. I worry that digital technology is not user friendly	3.56 (1.48)	3.93 (1.52)	0.280

Although comparisons between students from two countries are not highly recommended with such a small sample size, it should nevertheless be noted that stronger statistically significant

anxiety-related results were observed among Icelandic students ($N = 28$). For example, in statement 17 “*I worry that I will be overwhelmed by the developments in the digitalised world*”, the mean score increased from 3.91 ($SD = 1.50$) at pre-test to 4.71 ($SD = 1.12$) at post-test ($p = 0.028^*$). Similarly, for statement 19 “*I am concerned that I am expected to quickly understand new processes in the digital world*”, the mean score increased from 3.77 ($SD = 1.52$) to 4.71 ($SD = 1.08$), with $p = 0.010^{**}$. The findings indicate that, despite the small sample size limiting the strength of cross-country comparisons, **Icelandic students demonstrated statistically significant increases in several anxiety-related perceptions associated with digitalisation.** This pattern suggests that the intervention or learning experience may have heightened students’ awareness of the complexity and demands of digitalisation. Rather than reducing concerns, increased exposure to digital topics may have led students to reassess their own abilities more critically.

In contrast, the absence of statistically significant changes among Estonian students ($N = 29$) may indicate either a more stable baseline perception, a smaller intervention effect, or differences in prior experience with digital technologies. It is also possible that contextual factors, such as educational practices or familiarity with digital tools, influenced how students interpreted and responded to the items.

CAT 3: Interaction- and leadership-related digitalisation anxiety (organisational level)

These findings suggest that students’ perceptions of the impact of digitalisation on interaction and roles remained relatively stable. This may indicate that students do not experience noticeable changes in their everyday school interactions or do not strongly associate digitalisation with shifts in social relationships. It may also reflect that their experiences with digital communication are already well established.

CAT 4: Implementation-related digitalisation anxiety (organisational level)

No statistical significant indicates that students’ perceptions of the quality of digitalisation implementation remained largely unchanged. Given that adolescents generally have limited exposure to organisational decision-making and strategic processes, it is not surprising that their evaluations in this domain are less dynamic and more generalised.

Conclusions

In summary, the results show that the digitalisation anxiety profile of 13-16-year-old students is relatively stable across different levels, with the exception of the individual dimension. The only statistically significant change occurred in self-related anxiety, which increased in the post-measurement. This suggests that students primarily perceive digitalisation-related challenges at a personal level, in terms of their skills, abilities, and capacity to adapt.

At the societal and organisational levels, attitudes remained unchanged, indicating that such perceptions are likely formed over longer periods and are less influenced by short-term interventions. It may also be inferred that adolescents’ experience of digitalisation is primarily individual rather than systemic.

From a pedagogical perspective, the analysis highlights **the need to focus on developing digital competences in ways that support students' confidence and coping abilities**. It is important to provide learners with opportunities to experience success in digital environments, reduce fear of complexity, and foster understanding of digitalisation both at a personal and broader level. Thus, the study demonstrates that although young people are frequently exposed to technology, this does not automatically imply low levels of digitalisation anxiety. On the contrary, increased awareness may initially raise anxiety, particularly at the individual level.

References

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PART II: Students' feedback for project "POST-COM II" Estonian Exchange visit (06-10.04.2026) workshops held in Tartu Raatuse School

Methodology

In total there were 11 items out of which 8 were rated on a 4-point Likert scale as follows:

"1" - *the tasks were very difficult,*

"2" - *I managed, but there was not enough time,*

"3" - *I would like to do it again,*

"4" - *it couldn't be better.*

As the same project mobility workshops are being conducted for the second consecutive year, the table 5 presents comparative data from 2025 and 2026. Feedback participants in 2025 (76%) = 45 students out of 59. Feedback participants 2026 (88%) = 53 students out of 60.

Table 5. Comparison of average Estonian exchange visit workshop evaluation scores between 2025 and 2026

Workshop title	average score in 2025	average score in 2026 with IS-Giljaskoli
"Being Nice" (drama)	3.02	3.11
"Cultural Diversity" (game)	3.22	3.13
"Scientific research method" (paper + balloon)	2.88	3.09
"The Power of Spreadsheets" (formulas)	2.72	2.15
"How to impress Estonians" (learning Estonian language)	3.31	3.00
"Spotting demagoguery" (comics)	2.86	2.81
"Digital storytelling" (30 sec video)	2.77	3.11
"Staying safe online"	2.93	3.13

Likert scale workshop results and implications

The mobility week's average overall score remained very similar (2025 = 2.96 and 2026 = 2.94). The higher response rate in 2026 (88%) suggests stronger engagement and provides more reliable feedback for decision-making. Four workshops showed improvement:

a) Scientific research method (2.88 → 3.09)

b) Digital storytelling (2.77 → 3.11),

- c) Staying safe online (2.93 → 3.13),
d) Being Nice (3.02 → 3.11).

This may indicate clearer instructional structure, stronger relevance, and higher impact through hands-on activities. The main concern is the Power of Spreadsheets workshop (2.72 → 2.15), which suggests challenges related to student readiness and possible issues in how instructions were communicated. As this workshop already had a lower score in 2025, it would be advisable to improve its pedagogical design if it is to be implemented in the future.

It is also possible that the content of some other workshops was more familiar to students, allowing them to better conceptualise and integrate prior knowledge with the new experiences in the workshops. In contrast, statistical data processing with spreadsheets, although increasingly important in modern mathematics education, appears to have been something entirely new for students, with which they had not previously encountered in their school learning.

Open-ended question no 1 "Name 3 new ideas that you gathered from the EST 'POST-COM II' workshops."

Overall, the 2026 responses again show that workshops were most impactful when they were interactive, social, and practical. Compared to 2025, there is a slightly stronger emphasis on communication, social interaction, and emotional/behavioral learning, while fewer responses focus on structured academic or technical content. A notable feature is a higher number of vague or non-responding answers, which may suggest uneven engagement or question fatigue.

Digital Awareness & Online Safety

Online safety remains one of the most frequently mentioned themes. Participants referred to being careful online, avoiding scams, and thinking before posting.

Examples include: *"Be safe on the internet", "Internet is dangerous, scammers exist", "I should be more careful online", "Think before u do something"*

Implication: Digital safety continues to be a strong and relevant topic. However, compared to 2025, responses are more general and less detailed, suggesting that students may already be familiar with basic messages. Future workshops should therefore move beyond awareness toward practical digital decision-making, real-life case analysis, and critical evaluation of online content.

Cultural Diversity & Language Learning

Cultural awareness and language learning remain highly visible themes, often connected to Estonia, Iceland, and intercultural interaction.

Examples include: *"Different cultures", "Learn Estonian language and culture", "Iceland people are cool", "Speaking in another language"*

Implication: Intercultural exchange continues to be meaningful and engaging. However, responses suggest a shift from reflection to simple observation. Future workshops could deepen

impact by focusing on structured intercultural dialogue, comparative cultural tasks, and functional language use in real situations.

Soft Skills & Social Interaction

This is one of the strongest and most developed categories in 2026. Students frequently mention communication, teamwork, listening, and social confidence.

Examples include: *"Communication is important"*, *"Working in groups"*, *"Listening to others"*, *"Being nice and communicating"*, *"How to get to know people in a big group"*

Implication: Compared to 2025, soft skills are more explicitly recognised by students. This suggests increased awareness of their importance. Future programmes should continue prioritising collaborative learning, structured group dynamics, and confidence-building activities, possibly integrating reflection on group roles and communication strategies.

Practical Skills & Tools

This category remains present but is more fragmented than in 2025. Some references still relate to digital tools and science, but also include physical or hands-on experiences.

Examples include: *"The power of spreadsheets"*, *"Science can be used for many things"*, *"Make a real cake"*, *"More physical stuff"*, *"Demagoguery and critical thinking"*

Implication: Students still value practical, hands-on experiences, but responses suggest uneven understanding of learning goals across workshops. Some activities (e.g., spreadsheets) appear again as challenging, while others are remembered more as experiences than skills. Future design should strengthen clear learning objectives and visible real-world applications.

Creativity & Critical Thinking

Critical thinking appears more explicitly in 2026 responses than in 2025, often linked to digital safety, demagoguery, and general reflection.

Examples include: *"Critical thinking is important"*, *"Not everything is always real"*, *"Demagoguery is not cool"*, *"Think before you act"*

Implication: This indicates a positive shift toward meta-cognitive awareness, but the understanding remains surface-level. Future workshops could deepen this by introducing structured argument analysis, media literacy tasks, and guided reflection activities.

Workshop Environment & Logistics

Compared to 2025, fewer structured comments appear about logistics, but there are more indirect references to activity variety and engagement preferences.

Examples include: *"More sports"*, *"More digital workshops"*, *"Go to museums/shopping/ice cream"*, *"It was fun"*, *"Better icebreakers"*

Implication: Students still value variety, movement, and informal social elements. However, expectations are less focused on critique and more on suggesting preferred activity types. This suggests a need to balance structured learning with enjoyable, informal engagement moments.

Open-ended question no 2 "Name 2 new ideas from the EST 'POST-COM II' workshops that you would like to share with your friend"

Overall, participants in 2026 most frequently highlighted experiential activities, digital safety, cultural learning, and informal social experiences. Compared to 2025, responses are more fragmented and experience-oriented, with fewer structured conceptual reflections and more references to specific places, games, and personal impressions. The responses suggest that workshops were memorable mainly because they were fun, social, and activity-based, rather than conceptually complex. The key themes that emerged include:

Cultural Awareness & Diversity

Cultural experiences and exposure to Estonia and other countries remained a strong theme, often linked to travel, language, and places visited.

Examples: *"Culture differences and how to be safe online", "Facts about the Old Town and Estonian language", "Learned Estonian, Icelandic, English", "Tartu Old Town, museums, spas"*

Implication: Cultural learning remains highly engaging, but responses are often descriptive rather than reflective. Future workshops could deepen impact by adding structured intercultural comparison tasks, guided reflection, and student-led cultural presentations.

Digital Awareness & Online Safety

Online safety continues to be one of the most frequently mentioned ideas, often repeated in simple, direct messages.

Examples: *"Don't trust anything online", "Be careful on the internet", "Don't share personal information", "Control everything you see online"*

Implication: Digital safety messages are clearly retained, but understanding remains basic and repetitive. Future workshops should focus on critical evaluation of online content, real-world digital scenarios, and decision-making skills rather than only warnings.

Teamwork & Social Interaction

Teamwork and communication appear frequently, often linked to group tasks, games, and collaboration.

Examples: *"Communication is important in teamwork", "Learning to listen to others", "Working together makes things easier", "Games where fun, teamwork activities"*

Implication: Students strongly value social learning environments. Future programmes should continue emphasizing structured collaboration, role distribution in groups, and reflection on communication quality.

Theatre & Creative Activities

Creative, hands-on, and experiential tasks were highly memorable, particularly science experiments, storytelling, and multimedia tasks.

Examples: *"Balloon and straw science experiment", "Digital storytelling", "Making a cake and videos", "Comics and tribe activities", "Using visuals to present ideas"*

Implication: Creative learning is one of the strongest engagement drivers. Future workshops should expand project-based learning, storytelling, and interdisciplinary creative tasks combining science, media, and communication.

Critical Thinking & Ethics

Critical thinking appears, but less frequently and often in brief or informal statements.

Examples: *"Demagoguery is used in politics", "This project is really cool, thinking about politics", "Not everything online is true"*

Implication: Compared to 2025, critical thinking is less explicitly developed. There is potential to strengthen this area through structured debates, media analysis, and guided ethical discussions.

Workshop Environment & Logistics (Experience-based feedback)

A large portion of responses focus on enjoyment, places visited, and general experience rather than specific learning outcomes.

Examples: *"Science museum, AHHAA, planetarium", "Going to spas and malls", "It was fun", "Meeting new people", "Beautiful place to visit"*

Implication: The experience itself is highly valued, but learning outcomes are often not articulated. This suggests a need to better connect fun activities with explicit learning reflection moments, so students can verbalise what they learned beyond enjoyment.

Open-ended question "Name 1 idea on how teachers could improve the 'POST-COM II' workshops even further"

Overall, participants in 2026 generally expressed high satisfaction with the workshops, with many responses stating that no improvements were needed. However, when suggestions were given, they mainly focused on group organisation, clearer instructions, more active learning, and increased student agency. Compared to 2025, there is a stronger emphasis on student voice in planning and group choice, as well as a recurring request for more active and game-based learning. The key themes that emerged include:

Group Dynamics & Interaction

The most dominant theme in 2026 relates to how groups are formed and managed during workshops.

Examples: *"Don't always do the same groups", "Change groups more often", "Let students choose groups themselves", "Think about better groups"*

Implication: Students clearly value social variety and interaction with different peers. Compared to 2025, this theme remains strong but is even more explicit about student autonomy in group selection. Future workshops could benefit from planned group rotations, occasional student-chosen groups, and structured mixing strategies to balance comfort and diversity.

Workshop Engagement & Active Learning

Participants frequently suggested more interactive, game-based, and physical activities.

Examples: *“More games”, “More active activities”, “Interactive activities like real-life scenarios”, “Go karting”*

“More games outside”

Implication:

There is a clear preference for hands-on, experiential learning over passive instruction. This aligns with 2025 findings but is even more pronounced in 2026. Future design should prioritize the following: active learning tasks, outdoor or movement-based activities, and gamified learning structures.

Instructions, Clarity & Communication

A recurring theme is the need for clearer explanations of tasks and workshops.

Examples: *“Explain better”, “Be more clear when presenting projects”, “Explain the workshops better”, “Maybe explain better”*

Implication: Some students experienced uncertainty about expectations. This suggests a need for clearer task briefing, step-by-step instructions, visual examples or demonstrations, and repeated clarification during activities. This is consistent with 2025 feedback but appears more frequently in 2026.

Scheduling, Time & Structure

Some responses relate to pacing, duration, and organization of time.

Examples: *“More time for workshops”, “More time for orientation”, “Have the trips longer”, “More breaks or time to complete tasks”*

Implication: Students appreciate the workshops but sometimes feel rushed. Future improvement could include slightly extended workshop blocks, more flexible pacing, and improved onboarding/orientation at the beginning of the week.

Student Agency & Participation in Planning

A noticeable 2026 trend is the desire for students to influence the programme more directly.

Examples: *“Ask what students would like to do during the week”, “Let students choose groups”, “Maybe 9th graders could participate too”*

Implication: Compared to 2025, there is a stronger call for co-design and student voice. This suggests that future workshops could include pre-event surveys, allow students to vote on workshop themes, and involve students in partial planning decisions.

Positive Feedback / No Change Needed

A significant number of responses indicate satisfaction without suggested improvements.

Examples: “*Teachers were perfect*”, “*It was good already*”, “*Nothing to fix*”, “*They did amazing*”, “*Everything was good*”

Implication: This confirms a high overall satisfaction level, but also suggests that some students may be less reflective or unsure how to provide structured feedback. Future evaluation could include more guided reflection prompts to encourage more specific suggestions.

PART III: Students' feedback for project "POST-COM II" Iceland Exchange visit (18-22.05.2026) workshops held in Giljaskóli

Methodology

In total there were 9 items out of which 6 were rated on a 4-point Likert scale as follows:

"1" - *the tasks were very difficult,*

"2" - *I managed, but there was not enough time,*

"3" - *I would like to do it again,*

"4" - *it couldn't be better.*

As the same project mobility workshops have been conducted for the second consecutive year, the table presents comparative data from 2025 and 2026. In 2025, feedback was collected from 50 out of 59 students (85%), whereas in 2026, feedback participation increased to 58 out of 60 students (96.7%).

Table 6. Comparison of average Iceland exchange visit workshop evaluation scores between 2025 and 2026

Workshop title	average score in 2025	average score in 2026 with IS-Giljaskoli
"Be Positive"	2.82	3.04
"Werewolves"	3.19	3.25
"Spreading the Word"	3.17	3.16
"Spotting the fake"	2.67	3.09
"Headlines"	2.83	2.91
"Checking the facts"	2.63	2.86

Likert scale workshop results and implications

The mobility week's average overall score remained very similar (2025 = 2.89 and 2026 = 3.05). The comparison of workshop evaluation data between 2025 and 2026 shows an overall positive trend in student ratings, indicating improvements in perceived quality, engagement, and relevance of the workshops. Across the six workshops, most average scores increased, suggesting that the refinements made following the first year of implementation had a beneficial effect.

The most notable improvement was observed in the workshop "*Spotting the fake*", where the 2025 average mean score was 2.68 (SD = 0.68) and increased to 3.16 (SD = 0.79) in 2026, with a

statistically significant difference ($p = 0.002^{**}$). This result indicates a strong and reliable enhancement in students' evaluation of this workshop, suggesting that changes made to its content or delivery were particularly effective.

Other workshops also demonstrated positive, although smaller, improvements. For example, “Be Positive” and “*Checking the facts*” showed moderate increases in average scores, indicating gradual development in communication-related and media literacy competencies. Similarly, “*Werewolves*”, “*Headlines*”, and “*Spreading the Word*” exhibited either slight increases or stable scores, suggesting that these workshops were already functioning effectively in 2025 and required fewer modifications.

It is important to note, however, that the workshops in 2025 and 2026 were delivered by different teachers, which may have influenced the observed outcomes. **Differences in teaching style, facilitation skills, and interaction with students can significantly affect how workshops are experienced and evaluated.** Therefore, the variation in results may not be attributable solely to **changes in workshop design but also to differences in instructional delivery.**

Despite the overall positive trends, not all observed changes reached statistical significance. This suggests that while there is a consistent direction of improvement, the magnitude of change varies across workshops and may be influenced by factors such as sample size, participant variation, and teacher-related effects.

Open-ended question no 1 "Name 3 new ideas that you gathered from the ISL 'POST-COM II workshops"

The 2026 results show a broader and more diverse range of learning outcomes compared to 2025, extending beyond media literacy into social, emotional, and environmental domains. This suggests that the workshops not only developed students' critical thinking skills but also supported their holistic development as digitally aware and socially responsible individuals. Students' responses indicate that the workshops supported both cognitive (critical thinking, evaluation of information) and social-emotional learning (communication, openness, confidence). In addition, hands-on and culturally engaging activities played a key role in shaping students' experiences. Our data identified from students' open-ended responses in 2026, fell into five main categories.

Digital awareness and media literacy

Many students reported learning how to recognize fake news and fake accounts, evaluate online information, understand risks of AI-generated or misleading content

Examples: “*News can be fake*”, “*Some photos can be fake or made by AI*”, “*You have to be careful in the digital world*”

Implication: This shows that the workshops were highly effective in strengthening media literacy and critical thinking skills. Future programs could expand this further by introducing more advanced fact-checking tools, AI literacy, and real-world misinformation case studies.

Responsible use of technology and digital behaviour

Students demonstrated increased awareness of excessive phone use, digital footprint, energy consumption related to technology.

Examples: *“We use phones a lot and rely on them too much”*, *“I should delete useless things from my phone”*, *“Everything you post online stays forever”*

Implication: The workshops helped students reflect on their digital habits and responsibilities. Future activities could include structured reflection tasks and behaviour-change strategies to support more responsible technology use.

Social interaction, communication, and collaboration

A large number of students highlighted meeting new people, learning to communicate, overcoming social barriers

Examples: *“I am not socially awkward anymore”*, *“You have to talk to people even if they are different”*, *“Cooperation is important”*

Implication: The workshops strongly supported interpersonal communication and social confidence, especially in an international setting. This suggests that collaborative and interactive learning environments should remain a core element of future projects.

Positivity, values, and personal development

Students frequently mentioned kindness, positivity, helping others.

Examples: *“Be kind to everybody”*, *“Help others and spread kindness”*, *“Always give back positive energy”*

Implication: The results show that the workshops contributed not only to academic skills but also to social-emotional development. Future programs should continue integrating well-being, empathy, and positive mindset approaches into learning activities.

Environmental and sustainability awareness

Students also reported learning about energy production (e.g. geothermal energy), pollution, digital carbon footprint.

Examples: *“Phones have a big footprint”*, *“Energy can come from hot water”*, *“We pollute the world a lot”*

Implication: The integration of sustainability topics helped students develop broader awareness of environmental issues. Future workshops could strengthen this connection by linking digital behaviour with environmental impact more explicitly.

Open-ended question no 2 “Name 2 new ideas from the ISL ‘Post-Com II’ workshops that you would like to share with your friend”

The 2026 results show that students would share a combination of digital awareness, responsible behaviour, social values, and experiential learning. Compared to earlier results, there is a noticeable shift toward practical application, particularly in how students reflect on their own behaviour (e.g., phone use, online safety, communication). This suggests that the workshops not

only increased knowledge but also supported meaningful behavioural and mindset changes. In general, participants highlighted that they would share ideas related to media literacy, responsible technology use, and positive social behaviour, as well as practical and engaging activities such as games and cultural experiences. Compared to 2025, the responses show a strong emphasis on real-life behaviour changes, particularly regarding phone use, online safety, and interpersonal interaction. The responses revealed the following five key themes.

Media Literacy & Online Safety

Many students indicated they would share knowledge about fake news and fake accounts, verifying information, being cautious online.

Examples: “*News can be fake*”, “*Don’t trust everything on the internet*”, “*Trust but check*”, “*Be careful online*”

Implication: This confirms that media literacy and online safety remain central and well-internalised outcomes. Future workshops could deepen this by including more advanced fact-checking exercises and real-life misinformation scenarios.

Responsible Technology Use & Digital Behaviour

Students frequently mentioned reducing phone use, deleting unnecessary apps/emails, understanding digital footprint

Examples: “*Use your phone wisely*”, “*Delete unused apps and emails*”, “*Phones take energy and space*”

Implication: Students are developing awareness of digital responsibility and sustainability. Future activities could include practical behaviour-change strategies (e.g., digital detox tasks, tracking usage) to make this learning more actionable.

Social Interaction, Communication & Values

Many responses focused on meeting new people, being kind and positive, communication across cultures

Examples: “*Be positive*”, “*Be kind*”, “*Meeting new people is fun*”, “*Talking to people from other countries is important*”

Implication: The workshops successfully supported social-emotional learning and intercultural communication. Future workshops should continue emphasising collaboration, peer interaction, and inclusive communication.

Cultural & Experiential Learning (games, activities, Iceland)

Students strongly remembered: games (especially Werewolves), outdoor and interactive activities, Icelandic culture and experiences

Examples: “*Werewolves*”, “*Go more outside*”, “*It was fun*”, “*Iceland is beautiful*”

Implication: Hands-on and experiential activities were highly engaging and memorable. Future workshops should maintain a strong balance between learning and experiential elements to support engagement and retention.

Personal Development & Behaviour Change

Some students reflected on improving habits, avoiding negative behaviour, self-awareness

Examples: “Don’t bully”, “Don’t make assumptions”, “Live your life, don’t spend it trying to look better than others”

Implication: The workshops contributed to personal growth and self-reflection, indicating impact beyond academic learning. Future programmes could include structured reflection exercises to strengthen this outcome.

Open-ended question no 3 “Name 1 idea on how teachers could improve the ISL ‘Post-Com II’ workshops even further”

Compared to 2025, where students emphasised improving content, increasing engagement, and better organisation, the 2026 responses show a more experience-based and practical focus on engagement and activity level. While similar themes emerge, such as the need for interactive learning and student involvement, 2026 feedback places stronger emphasis on active participation, outdoor learning, and reducing passive instruction. Additionally, more students in 2026 expressed overall satisfaction, with many indicating that no major improvements were necessary. The responses revealed the following six key themes.

More Active and Engaging Learning

Many students suggested that workshops could be improved by including more physical activities, adding interactive and fun elements, reducing passive learning

Examples: “More active stuff, physically”, “Make it more engaging”, “Do less talking”, “Do more games”, “Make it more interesting and fun”

Implication: Students clearly prefer active, student-centred learning approaches. Future workshops should increase hands-on, movement-based, and interactive activities to enhance engagement and participation.

More Outdoor and Experiential Activities

Students expressed interest in spending more time outside the classroom, visiting real-life environments, learning through experience.

Examples: “More outside activities”, “Explore more outside of the school”, “Visit more places”

Implication: Experiential learning is highly valued. Future programmes should integrate field-based and real-world learning opportunities to make content more meaningful and memorable.

Improved Teaching Methods and Clarity

Some students highlighted the need for clearer instructions, better pacing, more engaging delivery.

Examples: *“Don’t give too much information at once”, “We didn’t always understand what to do”, “Speak more interestingly”*

Implication: Improving instructional clarity and scaffolding will support understanding. Teachers could break tasks into smaller steps and check comprehension regularly.

More Collaboration and Social Interaction

Students suggested more group-based activities, better mixing of students.

Examples: *“Have more fun groups”, “Teachers should assign groups”, “More joint activities”*

Implication: Structured group work can enhance collaboration, inclusion, and social learning. Rotating groups may help students interact beyond their usual circles.

Time Management and Structure

Some responses focused on shorter sessions, more breaks, reducing workload.

Examples: *“Make them shorter”, “More breaks”, “More free time”*

Implication: Adjusting pacing may reduce cognitive overload and improve concentration and learning outcomes.

Minimal or No Improvement Needed

A notable number of students indicated no changes required, high satisfaction

Examples: *“It’s perfect”, “Nothing to improve”, “They are good”*

Implication: This reflects overall positive evaluation, suggesting that improvements should focus on fine-tuning rather than major redesign.

PART IV: Students' Intrinsic Motivation Study

Additionally, a second short-term pre- and post-test instrument was being administered to students during the activities conducted throughout the project period. This instrument was based on the Ryan and Deci intrinsic motivation scale (2017), which was developed within the framework of Self-Determination Theory (SDT). The SDT-based instrument included autonomy, competence and relatedness. Also perceived interest and value. The instrument consisting of 21 items used a Likert scale, where 1 = strongly disagree and 7 = strongly agree.

The SDT framework, which was focusing on basic psychological needs, had been widely used in educational research for over four decades and was maintaining an important role in understanding students' motivation and well-being. It had also been shown to contribute to reducing anxiety, including in contexts involving distancing measures during the COVID-19 pandemic. Previous studies were indicating that increases in students' intrinsic motivation could reduce their perceived anxiety in the learning environment (de Abreu Costa).

For the current project period, a hypothesis was being established as the main short-term outcome indicator, based on the two instruments described above. The hypothesis guiding this short-term measurement period was as follows: as students' perceived self-determination (across its subcomponents) was increasing, their level of digital anxiety was decreasing.

Results

The Cronbach's alpha coefficient for the overall instrument in the pre- and post-test was $\alpha = .870$, indicating high internal consistency and reliability. However, the relatively small number of items within certain categories may have contributed to lower reliability estimates at the subscale level. Specifically, the Cronbach's alpha values were as follows: interest ($\alpha = .583$), competence ($\alpha = .661$), autonomy ($\alpha = .551$), relatedness ($\alpha = .329$), and value ($\alpha = .748$). These results suggest that the reliability of the relatedness subscale is particularly low. Therefore, findings associated with this category should be interpreted with caution and may not be suitable for inclusion in further analysis. A similar data analysis approach as applied to the DAS instrument was also carried out here (Table 7).

Table 7. Results of the 21-statement Intrinsic Motivation Inventory pre- and post-test

Category	Pre results (SD)	post results (SD)	p-value
Interest (1, 7, 10, 16)	4.65 (0.87)	5.30 (0.75)	0.001 ***
Competence (2, 8, 11, 15, 19)	4.67 (0.81)	4.88 (0.81)	0.053
Autonomy (3, 12, 17)	4.90 (0.98)	4.93 (0.83)	0.796
Relatedness (4, 13, 20)	4.30 (0.69)	4.99 (0.78)	0.001 ***

Value (5, 6, 9, 14, 18, 21)	4.65 (0.82)	4.95 (0.75)	0.019 *
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Discussion

The findings indicate that the intervention was particularly **effective in enhancing students' interest and relatedness, suggesting increased engagement and improved social interaction within the learning environment**. These results are especially meaningful given the post-COVID context, where reduced face-to-face communication opportunities have contributed to heightened communication anxiety. The combination of online meetings and collaborative workshop formats appears to have supported students in re-engaging with peers and rebuilding a sense of connection. Similarly, the mobility periods, which emphasised active participation and critical thinking, may have provided meaningful opportunities for interpersonal interaction and shared learning experiences. However, it should be noted that the internal consistency of the relatedness subscale was low, which limits the strength of conclusions drawn from this dimension and requires cautious interpretation.

Improvements were also observed in perceived value, suggesting that students came to view the learning activities as more meaningful and relevant. The use of varied formats (workshops, online meetings, mutual events) likely contributed to this outcome by offering diverse and authentic learning experiences. These formats may have enhanced students' perception of the usefulness and applicability of the activities, which is an important factor in sustaining motivation in post-pandemic educational settings.

In contrast, competence showed only limited change, and autonomy remained largely unaffected. This may indicate that, although the intervention successfully supported engagement and social interaction, it was less effective in strengthening students' perceptions of their own abilities or their sense of control over the learning process. One possible explanation is that the activities, while collaborative and interactive, may not have explicitly emphasized individual mastery or provided sufficient opportunities for independent decision-making. The structured nature of the workshops and mobility tasks may have limited students' experience of autonomy. Additionally, the relatively low internal consistency of some subscales further constrains the interpretation of these findings.

When considered in relation to the study hypothesis partial support. The observed increases in interest, relatedness, and perceived value indicate an overall enhancement of key components of self-determination. Given that these dimensions are closely linked to reduced anxiety in educational contexts, it is plausible that the intervention contributed to alleviating students' communication-related anxiety. However, the absence of clear improvements in autonomy and competence suggests that the increase in self-determination was not uniform across all categories, limiting the extent to which the hypothesis can be fully confirmed.

References

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Eestikeelne kokkuvõte

Käesolev dokument annab ülevaate Nordplus Junior projekti POST-COM II raames läbiviidud uuringutest, mille eesmärk oli vähendada 13 kuni 16-aastaste õpilaste post-COVID suhtlus- ja digitaalse ärevuse taset ning samal ajal arendada nende kriitilise mõtlemise oskusi. Projekt viidi ellu Eesti (Tartu Raatuse Kool) ja Islandi (Giljaskóli) koostöös ning hõlmas nii veebipõhiseid töötubasid, iseseisvaid, kuid temaatiliselt seotud tegevusi kui ka kahte rahvusvahelist õpirännet.

Digitaalse ärevuse hindamiseks kasutati Digitalisation Anxiety Scale (DAS) instrumenti, mis näitas väga kõrget usaldusväärset ning võimaldas analüüsida ärevust neljas dimensioonis. Tulemused näitasid, et õpilaste üldine digitaalse ärevuse tase jäi suhteliselt stabiilseks. Siiski ilmnes oluline muutus individuaalsel tasandil – õpilaste enesega seotud digitaalse ärevuse kasv, mis viitab suurenenud teadlikkusele digimaailma keerukusest ja enda oskuste piiratusest. See tulemus ei pruugi tähendada negatiivset arengut, vaid pigem realistlikumat enesehinnangut.

Lisaks analüüsiti õpilaste sisemist motivatsiooni Ryan ja Deci enesemääratluse teooriast lähtuva instrumendi abil. Tulemused näitasid märkimisväärset kasvu huvis ja sotsiaalses kuuluvuses ning mõõdukat paranemist õppetegevuste väärtustamises. Samas jäid autonoomia ja pädevuse hinnangud suures osas muutumatuks. See viitab sellele, et projekt oli eriti tõhus sotsiaalse kaasatuse ja õppimise vastu huvi suurendamisel, kuid vähem efektiivne õpilaste enesetõhususe ja iseseisvuse arendamisel.

Õpirännete tagasiside analüüs kinnitas, et kõige mõjusamad olid praktilised, koostööl põhinevad ja interaktiivsed tegevused. Õpilased rõhutasid eriti meedia- ja digipädevuste, sotsiaalsete oskuste ning kriitilise mõtlemise arengut, kuigi mõnede teemade puhul jäi arusaamine pigem pinnapealseks.

Kokkuvõttes viitavad tulemused sellele, et projekt aitas parandada õpilaste suhtlusvalmidust ja sotsiaalset enesekindlust, mis on olulised tegurid post-COVID ärevuse vähendamisel. Edaspidi tuleks rohkem tähelepanu pöörata autonoomia ja pädevuse sihipärasele arendamisele ning mõõtevahendite usaldusväärsuse parandamisele.