Impact Assessment Study

Co-funded by the European Union

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1. Introduction

1.1. Project overview

The INFO-PRO project addresses the growing need for digital skills and social inclusion among marginalized youth in Hungary, Slovakia, and Austria. Targeting young people from disadvantaged and socially excluded backgrounds—such as Roma communities in rural areas—the project aims to equip participants with digital, social, and job-related skills essential for future employment. Building on the successes and insights from the Erasmus+ funded FUTURE SKILLS project, INFO-PRO provides a year-long intervention that combines digital skill-building with social support, specifically designed to empower youth with limited educational and economic opportunities. Through this multifaceted approach, INFO-PRO seeks to bridge critical skill gaps, promote social integration, and foster participants' self-esteem, ultimately helping to reduce the number of NEETs (young people who are Not in Education, Employment, or Training) among disadvantaged groups.

INFO-PRO's primary focus is a series of weekly After School sessions, held for three hours each week over an entire school year. These sessions provide disadvantaged youth with hands-on training in coding, digital literacy, and game development, using applications like Unity and Codary to introduce programming in an engaging and gamified manner. The curriculum covers not only the technical skills necessary for entry-level positions in IT but also foundational concepts in mathematics and logical thinking, helping participants gain an understanding of the "why" behind digital processes. This approach is critical, as many of these youth have had limited exposure to quality education in subjects like math or IT and often lack the opportunity to explore potential career paths within technology fields.

Recognizing that skill-building alone is insufficient, INFO-PRO incorporates experiential education (EE) methodologies designed to strengthen participants' social and interpersonal skills, including teamwork, communication, resilience, and stress management. These essential "soft" skills are invaluable for young people as they prepare to enter the labor market. EE activities also foster a sense of belonging and mutual support, enabling participants to build connections with their peers and gain confidence in a safe, inclusive environment.

The INFO-PRO project also has a broader social objective: to combat the systemic social isolation and exclusion faced by ethnic minorities and rural populations in Hungary and Slovakia, especially among Roma youth. The COVID-19 pandemic has exacerbated inequalities, leaving marginalized communities even more vulnerable. INFO-PRO aims to bridge this divide by providing a long-term, non-formal educational program that supports these young people on multiple levels, including mental well-being, practical skills, and social inclusion. The project also pays special attention to addressing the gender gap in IT by prioritizing the involvement of girls, who are often underrepresented in technology fields, and by providing them with role models and encouragement to pursue technical careers.

Additionally, INFO-PRO will expand its reach by training approximately 10 trainers and educators across Austria, Hungary, and Slovakia in coding instruction, experiential education, and job skills training. This effort will enable teachers, trainers, and social workers

to adopt and implement INFO-PRO's methodologies in their own communities, even beyond the project's initial duration. By creating a network of trained professionals across these three countries, INFO-PRO ensures that the project's impact extends beyond direct participants, benefiting future youth cohorts and educational organizations in the region.

One of the project's culminating events is a two-week Summer School Training in Vienna, where around 45 youth from Hungary, Slovakia, and Austria will come together to deepen their digital skills and collaborate on real-world projects. This Summer School experience is designed to foster intercultural exchange and expose participants to professional environments, including IT startups. By connecting with industry professionals and fellow peers from diverse backgrounds, participants will broaden their perspectives, develop networking skills, and gain insights into potential career paths.

1.2. Objectives of the impact assessment

The primary objective of this study is to assess the impact of the INFO-PRO project on the digital and job-market readiness of disadvantaged youth in Hungary and Slovakia. Given the significant skills gap and high unemployment rates among marginalized young people in these countries, the study aims to measure how participation in INFO-PRO's year-long After School sessions influences participants' digital literacy, programming skills, and job preparedness. Through quantitative and qualitative data collection, the study will evaluate changes in digital competencies, understanding of basic coding, and essential job-seeking skills such as resume writing and interview preparation.

This study also seeks to understand the role of experiential education (EE) in fostering participants' social skills, self-confidence, and teamwork abilities, which are crucial for effective engagement in both digital learning and future employment. Additionally, it will examine how the inclusion of targeted groups, such as Roma youth and young women, impacts their interest and confidence in pursuing technology-related careers. By evaluating these factors, the study aims to provide a holistic understanding of INFO-PRO's influence on participants' readiness for the digital workforce and their long-term employability.

The findings will be used to refine INFO-PRO's methodology and offer evidence-based insights for similar initiatives, supporting policymakers, educators, and NGOs in developing inclusive educational programs that equip marginalized youth with essential skills for the modern job market.

2. The current situation

2.1. The current educational and job market situation in Hungary and in Slovakia

Hungary

Educational Challenges

Hungary's education system has long been criticized for its lack of inclusivity, particularly concerning marginalized groups like the Roma population. Research by Radó (2018) and Bódis (2019) highlights structural segregation and resource disparity, especially in rural areas where Roma communities are concentrated. According to the European Roma Rights Centre (ERRC, 2020), a substantial percentage of Roma students in Hungary attend segregated schools, which often have limited access to digital resources, qualified teachers, and extracurricular support.

PISA (Programme for International Student Assessment) data from 2018 show that Hungary performs below the OECD average in literacy and numeracy skills, with a significant achievement gap between students from affluent and disadvantaged backgrounds (OECD, 2019). For example, only 13% of students from the lowest socio-economic quartile reach the proficiency level required for future academic or career success, compared to 56% from the highest quartile (OECD, 2019). This gap is even more pronounced for Roma students, who face additional barriers due to social exclusion and a lack of digital literacy opportunities, as emphasized by Czibere and Rácz (2020).

Employment Challenges

The Hungarian job market presents significant barriers for disadvantaged youth, including high NEET rates (young people not in education, employment, or training). According to Eurostat (2021), Hungary's NEET rate for 15–24-year-olds stands at 12.5%, slightly above the EU average. However, Roma youth and rural youth have even higher NEET rates, primarily due to limited access to quality education and vocational training (Tóth & Ábrahám, 2019).

Structural unemployment in rural areas and high dropout rates among disadvantaged youth make it challenging for them to acquire the digital and soft skills needed for today's job market. A report by the Hungarian Academy of Sciences (2020) notes that only 3% of students in Hungary have access to structured digital education by age 15, which limits their potential for technical career paths.

Slovakia

Educational Challenges

In Slovakia, the educational landscape for disadvantaged youth, particularly for the Roma, mirrors many of Hungary's issues but with even starker inequalities. In rural and segregated schools, basic educational needs are often unmet, and digital resources are scarce (Kováčová & Juríková, 2017). European Union Agency for Fundamental Rights (FRA) data

reveal that over 60% of Roma students in Slovakia attend segregated schools, where they receive an education that falls below national standards (FRA, 2020).

Slovakia also performs below the OECD average in PISA scores, especially in mathematics and science. Only about 10% of students from disadvantaged backgrounds reach proficiency levels that enable them to succeed academically or professionally, compared to 70% from wealthier backgrounds (OECD, 2018). As Mihályi (2020) points out, the lack of digital infrastructure in rural Slovakia exacerbates the digital divide, leaving many young people unprepared for modern job markets.

Employment Challenges

Youth unemployment in Slovakia is particularly high in rural and marginalized areas, where job opportunities are scarce, and skills training is limited. The Slovak NEET rate stands at 13.9%, with Roma youth experiencing even higher rates (Eurostat, 2021). In these communities, traditional employment avenues are often inaccessible, and there is a high demand for digital and IT skills. Studies by Hidas and Hajduová (2019) emphasize that without targeted intervention, these youth have minimal chances to acquire the competencies needed for IT or other technical fields.

Similarities Between Hungary and Slovakia in Education and Employment Challenges

Both Hungary and Slovakia face systemic educational and employment challenges that disproportionately impact disadvantaged youth, particularly those from Roma communities and rural backgrounds. In both countries, Roma children often attend segregated, under-resourced schools where access to quality digital education and vocational training is limited (FRA, 2020). These inequalities have been exacerbated by the COVID-19 pandemic, which widened the digital divide and further isolated marginalized communities (Salner, 2021).

Both countries exhibit high NEET rates and structural barriers to employment, especially in the IT and technology sectors, which are expected to drive future economic growth. The skills gaps in digital literacy, mathematics, and soft skills place disadvantaged youth at a severe disadvantage in the labor market. As a result, both Hungary and Slovakia face significant social and economic costs due to the exclusion of a large segment of their young population.

3. Teaching method

3.1. How the Teaching Method of INFO-PRO Fits

Experiential and Interactive Approach

Our teaching method focuses on experiential and interactive learning, addressing the structural challenges in Hungary and Slovakia by providing marginalized youth with hands-on opportunities to acquire IT skills. Unlike traditional education systems, which often rely on rote learning and limited digital exposure, our approach emphasizes active participation, creativity, and collaboration. This aligns with research suggesting that experiential IT learning can improve outcomes for disadvantaged students by making abstract concepts tangible and relatable (Kolb, 1984; Kiss, 2013).

For instance, our curriculum incorporates practical programming tasks, such as creating small games or simulations in C#, which provide students with a strong foundation in coding and logical thinking. By using tools like Unity and generative AI, students not only learn programming but also gain experience in real-world applications of technology, preparing them for future careers in IT and related fields.

Promoting Inclusivity

In both Hungary and Slovakia, marginalized communities face systemic exclusion from quality education and employment opportunities (Radó, 2018; Kováčová & Juríková, 2017). Our method is designed to bridge this gap by fostering an inclusive environment where students from disadvantaged backgrounds can develop their skills in a supportive, collaborative setting. The project-based nature of our teaching, such as the card game development, allows students to work in teams, encouraging peer-to-peer learning and building their confidence in collaborative settings.

Enhancing Digital Literacy

Digital literacy is a critical skill gap in both Hungary and Slovakia, particularly among rural and Roma youth (OECD, 2019; Mihályi, 2020). Our curriculum directly addresses this gap by integrating digital tools and platforms into the learning process. For example, students learn to use AI tools to generate visual assets for their projects, improving their familiarity with emerging technologies. This exposure ensures they are not only consumers of digital tools but also active creators, which is essential for participating in the digital economy.

Building Soft Skills

Soft skills, such as teamwork, communication, and critical thinking, are increasingly valued in the modern labor market but are often underemphasized in traditional education systems (Hidas & Hajduová, 2019). Our approach incorporates activities that promote these skills, such as group discussions, collaborative decision-making, and iterative project development. For instance, during the card game project, students work in teams to design rules, develop characters, and integrate their ideas, fostering cooperation and group problem-solving.

3.2. Aims and Expected Outcomes

Our primary aim is to bridge the skills gap identified in Hungary and Slovakia by equipping disadvantaged youth with the technical and soft skills required for future employment. Through experiential learning, students gain practical IT competencies, such as programming, data management, and digital design, which align with the needs of the modern labor market (CEDEFOP, 2023).

Fostering Creativity and Innovation
By incorporating tools like generative AI and Unity, our method encourages students to think creatively and explore innovative solutions. This not only enhances their technical skills but also inspires them to view technology as a means of self-expression and problem-solving, preparing them for dynamic and creative roles in the IT sector.

Promoting Social Inclusion
Our teaching approach aims to promote social inclusion by providing marginalized youth with opportunities to succeed in an equitable learning environment. By building their confidence and fostering collaboration, we empower these students to break free from systemic barriers and envision a future where they can actively contribute to their communities and the economy.

Preparing for Lifelong Learning
In a rapidly evolving digital world, adaptability is key. Our curriculum instills a mindset of lifelong learning by encouraging students to explore, experiment, and reflect on their progress. By teaching them how to learn—whether through AI tools, coding platforms, or collaborative projects—we equip them with the resilience and curiosity needed to thrive in a constantly changing job market.

3.3. Experiential Approach to Learning Informatics

Our teaching approach is rooted in experiential learning, emphasizing active participation, collaboration, and practical application to ensure that students internalize key informatics concepts. By engaging students in hands-on, interactive activities, we create an environment where learning is not only effective but also enjoyable. This method encourages creativity, critical thinking, and teamwork, making complex subjects like programming and digital literacy accessible and relevant. Students are not passive recipients of knowledge but active participants in their education, which helps them connect theoretical principles to real-world contexts.

The experiential approach also focuses on fostering decision-making skills, group collaboration, and problem-solving. Lessons are designed to include movement-based and interactive tasks, ensuring that students are engaged physically and mentally. Moreover, this approach integrates technology as a tool for exploration and creativity, encouraging students to view informatics not just as a subject but as a dynamic skill set they can apply in their lives and future careers.

Moreover, this teaching method promotes social inclusion by fostering a collaborative and supportive learning environment. By working together on group projects, students from diverse backgrounds gain confidence, learn to navigate teamwork, and develop communication skills. For marginalized youth, this inclusive approach provides an equitable platform to succeed and empowers them to break free from systemic barriers, enabling their active contribution to their communities and economies.

The curriculum's emphasis on interactive and project-based tasks ensures students are prepared not only for current job opportunities but also for lifelong learning in a rapidly evolving digital world. By encouraging students to explore, experiment, and reflect on their progress, we instill adaptability and curiosity. These qualities are essential for navigating continuous advancements in technology. Through activities such as crafting AI prompts, coding in C#, and designing projects collaboratively, students learn not just specific technical skills but also how to learn, a vital competency in the modern labor market.

This method ultimately bridges gaps, fosters creativity, and equips students with the tools and mindset needed to thrive in both their personal and professional lives.

3.4. Curriculum Overview

Our curriculum is structured to gradually guide students from fundamental concepts to more advanced programming and design tasks. It is designed to be interactive and flexible, allowing students to explore and experiment as they learn.

Foundations of Informatics

The program begins with an introduction to informatics, where students learn about the origins, applications, and relevance of the field in everyday life. Discussions are guided by the question, *"What is informatics, and why is it important?"* Students assess their own understanding through online questionnaires, which also serve to tailor the curriculum to their prior knowledge and interests. This introductory phase builds a foundation of curiosity and readiness for deeper learning.

Programming Basics

The first phase of programming lessons introduces core concepts such as variables, data types, and arithmetic operations using C#. Students learn not just how to code but also why these concepts matter, linking them to practical applications. For example, the concept of variables is introduced as a way to store and manipulate data, explained through real-world analogies and simple coding exercises. Logical operations like AND, OR, and NOT are taught as the building blocks of decision-making in programming, fostering a problem-solving mindset.

As students progress, they learn to write basic algorithms, incorporating loops and conditional statements such as IF-ELSE, WHILE, and FOR. These concepts are taught not only through theoretical explanations but also through tasks that encourage exploration,

such as simulating coin flips or dice rolls. By coding these simulations, students understand randomness and probability while practicing their programming skills.

Integrating Logic and Algorithms

The curriculum emphasizes logical thinking as a key component of programming. Students are guided through exercises that challenge them to identify logical structures in everyday scenarios and apply them in code. For instance, they create flowcharts to visualize processes like decision trees or simple game mechanics. This phase introduces more complex topics, such as Boolean logic and its implementation in C#.

Algorithm design becomes a focal point as students learn to break down problems into manageable steps. They explore the elements of algorithms, such as sequences and loops, and apply them to practical tasks. By linking algorithms to real-life activities—like sorting a deck of cards or planning a route—students gain a deeper understanding of how algorithms structure problem-solving in both digital and physical spaces.

Advanced Topics and Tools

In the second half of the program, students delve into advanced topics, including object-oriented programming (OOP). They learn about classes, methods, and data structures, exploring how these concepts form the backbone of modern software development. While some elements, like trees and graphs, are introduced as curiosities rather than in-depth topics, the focus is on understanding when and why these structures are useful.

Additionally, students are introduced to Unity, a game development platform, where they implement their programming knowledge in a creative, visually engaging environment. They learn how to use randomness in game mechanics, such as simulating the flip of a coin or rolling a die, and integrate these elements into small games they design and build themselves.

3.5 The Card Game Project

One of the most innovative and impactful aspects of the curriculum is the development of a card game, which combines programming, creativity, and teamwork. This project serves as the culmination of the experiential approach, integrating all the knowledge and skills acquired throughout the program. Students engage in every stage of the game design process, from conceptualization to implementation, applying key informatics concepts such as loops, conditional statements, algorithms, and object-oriented programming.

Using generative AI tools, students create visual representations for the game’s characters, settings, and storylines. They learn to craft prompts for the AI, improving their ability to communicate effectively with technology while exploring the creative potential of artificial intelligence. This process introduces them to the fundamentals of human-AI interaction, a skill that is increasingly relevant in modern informatics.

The project seamlessly incorporates the core curriculum content into its development. For instance, when designing the game’s mechanics, students apply logic and loops to create

structures like randomized gameplay elements (e.g., shuffling and dealing cards). Conditional statements, such as IF-ELSE and SWITCH CASE, are used to program game rules and outcomes. Algorithms are implemented to manage tasks like scoring and determining the effects of different card combinations, allowing students to see firsthand how these abstract concepts come to life in a practical application.

The card game project also emphasizes collaboration. While students initially develop individual characters, story elements, and gameplay ideas, they come together in groups to combine their ideas into a cohesive game. This process fosters teamwork, group decision-making, and the ability to integrate diverse perspectives into a single project. By discussing and refining game rules as a team, students practice critical thinking and learn to compromise effectively, skills essential for collaborative work in any field.

Throughout the project, students also engage with English as the primary language for interacting with tools like Google Translate and the AI systems. This enhances their language skills in a practical, goal-oriented context, allowing them to develop communication abilities alongside their technical knowledge. Iterative design plays a significant role, as students refine the game's rules, visuals, and mechanics based on peer and instructor feedback.

By the end of the project, students not only have a fully functional card game but also a comprehensive understanding of how informatics concepts are applied in real-world scenarios. The card game serves as a creative and interactive platform where all elements of the curriculum—programming basics, loops, algorithms, logic, data structures, and even storytelling—are interconnected. This holistic approach demonstrates how theoretical knowledge and practical skills come together to create something meaningful, leaving students with both confidence in their abilities and a tangible product of their efforts.

3.6. Conclusion

The card game project exemplifies the experiential learning approach at its best. It provides a hands-on, collaborative experience where students apply their knowledge creatively, integrating programming principles with teamwork, decision-making, and AI-driven design. By combining foundational informatics concepts with advanced topics in a real-world application, the project not only deepens students' understanding but also equips them with skills for future academic and professional endeavors. This approach ensures students leave the program as confident, capable, and innovative contributors to a technology-driven world.

The experiential teaching method described in this program directly addresses the critical gaps in IT skills and job-market readiness observed in marginalized youth in Hungary and Slovakia. As highlighted earlier, both countries face significant challenges in equipping young people with the digital skills demanded by an increasingly technology-driven economy. Many students, particularly those from disadvantaged backgrounds, lack access to practical, hands-on education in programming, data literacy, and digital tools—skills that are becoming essential for almost all job sectors.

By integrating interactive, project-based learning into informatics education, this teaching method bridges the gap between theoretical knowledge and real-world application. Students

gain a practical understanding of programming concepts like loops, data structures, and algorithms, which are fundamental to modern IT roles. Moreover, through collaborative projects like the card game development, they are exposed to teamwork, problem-solving, and decision-making processes that mirror workplace dynamics. These skills are highly transferable, preparing students not only for technical roles but also for jobs requiring analytical thinking and collaboration.

Additionally, incorporating tools like generative AI and platforms provides students with exposure to cutting-edge technologies. This prepares them for the rapidly evolving digital job market, where such tools are increasingly used across industries. The emphasis on learning in English and using tools like Google Translate further enhances students' employability, equipping them with the language skills necessary for global job opportunities. By combining technical skills with creativity, teamwork, and communication, this method ensures students are not only job-ready but also adaptable to future technological advancements, addressing the skill gaps that currently hinder many young people in Hungary and Slovakia.

4. Research Planning

4.1. Introduction: Rationale Behind the Research Focus

The INFO-PRO project was designed to address critical gaps in education and employment readiness among disadvantaged youth in Hungary and Slovakia, particularly in the context of digitalization and social inclusion. To evaluate the project's effectiveness, we focused on key areas of impact that align with its primary objectives. These include participants' attitudes toward digitalization, their engagement with the training content, group dynamics, and their preparedness for the labor market. This research focus provides a comprehensive understanding of how the project influenced its participants and identifies areas for improvement in future initiatives with similar aims.

A core aspect of the evaluation is to explore how the INFO-PRO project influenced participants' attitudes toward digitalization. Specifically, we ask: *How has the INFO-PRO project influenced participants' attitudes toward digitalization in their daily lives and future career aspirations?* and *To what extent has the project shifted participants' perceptions of the opportunities and risks associated with digitalization?* Understanding whether participants view digitalization as an opportunity for personal and professional growth—or if they have become more aware of its risks and challenges—offers valuable insight into the broader impact of the project.

The effectiveness of the training content is another central focus. The INFO-PRO project combined experiential education (EE), programming/coding, and job and soft skills training to create a holistic learning experience. To evaluate this, we ask: *How did the experiential coding/programming education, and job & soft skills components of the training plan influence the participants' understanding?* Examining these questions helps determine whether these innovative teaching methods made complex concepts accessible and engaging for disadvantaged youth, ultimately bridging the gap between theoretical knowledge and practical application.

Further, the project's contribution to participants' readiness for the labor market is a crucial dimension of the evaluation. We ask: *How has the project affected participants' perceptions of their own opportunities and preparedness for entering the labor market?* By examining whether the training enhanced participants' confidence and awareness of the skills required for modern careers, particularly in IT and related fields, we can assess the program's role in empowering disadvantaged youth to pursue meaningful employment.

Given the emphasis on social inclusion, the project also sought to improve group dynamics and interpersonal skills. To assess this, we pose the question: *How did the project impact group dynamics among participants, particularly their ability to collaborate, communicate, and build trust with peers and teachers?* These aspects are critical for fostering a sense of belonging and helping participants develop the teamwork skills essential for both personal growth and professional environments.

By embedding these research questions into the evaluation, we aim to provide a detailed analysis of the project's impact. This approach ensures that the findings will not only inform the refinement of the INFO-PRO program but also contribute to broader discussions on how

experiential and inclusive educational methods can transform the lives of marginalized youth in digital and employment contexts.

4.2. Methodological Approach

To evaluate the impact of the INFO-PRO project on participants, we employed a combination of quantitative and qualitative methods tailored to each aspect of the research. This mixed-methods approach allowed us to capture both measurable outcomes and nuanced insights, providing a comprehensive understanding of the project's effects on attitudes, skills, and group dynamics. The selection of methods was guided by the specific nature of each research focus and the need to address both the scope and depth of the participants' experiences.

To assess participants' attitudes toward digitalization in their daily lives and future career aspirations, we relied on quantitative surveys and a deliberative opinion poll (DOP). The surveys, designed with age-appropriate Likert-scale questions, captured measurable changes in perceptions before and after the project. These surveys provided a statistical basis for analyzing shifts in attitudes, offering a clear picture of how participants' views evolved over time. The DOP, which involved showing a thought-provoking movie (*The Circle*) and gathering responses before and after, complemented the surveys by encouraging critical reflection. This method allowed participants to engage deeply with the subject, offering richer insights into how structured experiences influenced their perceptions. Together, these tools provided both breadth and depth in understanding how the project affected attitudes toward digitalization.

When examining the effectiveness of the training content, which combined experiential education (EE), programming, and job and soft skills, we utilized both surveys and observational methods. Surveys were used to gather self-reported data on participants' engagement and understanding of the material, focusing on aspects such as skill improvement and interest levels. These quantitative measures provided a broad overview of how well the training content resonated with participants. Observations by group leaders added a qualitative dimension, capturing real-time behaviors such as active participation and enthusiasm. This dual approach ensured a comprehensive evaluation, highlighting both subjective perceptions and objective indicators of content engagement.

To explore group dynamics and social inclusion, observational methods were the primary tool. Group leaders systematically observed participants' interactions during collaborative tasks, such as discussions and team-based projects like the card game. These observations provided valuable insights into how the project fostered collaboration, communication, and trust among participants. By focusing on behaviors rather than self-reports, this approach minimized biases and offered an authentic assessment of how participants developed interpersonal skills and built group cohesion.

Participants' perceptions of their own preparedness for the labor market were assessed through semi-structured interviews conducted during the summer camp. These qualitative interviews focused on participants from Hungary and explored their aspirations, perceived improvements, and readiness for future employment. This method allowed for in-depth, personalized discussions, offering a detailed understanding of how the training influenced

participants' confidence and awareness of the skills required for modern careers. The decision to focus on participants from Hungary was intentional, as they were specifically identified as being in life circumstances where these skills were critically needed to improve their employment opportunities and overall social mobility. This targeted approach ensured that the evaluation addressed the unique challenges and needs of a particularly vulnerable group, providing a strong foundation for future iterations of the program.

Throughout the project, we also measured attitudes toward digitalization and its risks and opportunities using a combination of surveys and reflective tools like the DOP. These methods not only tracked general trends but also encouraged participants to critically engage with the content, enhancing their learning experience. Similarly, engagement with the training content was evaluated using both quantitative and qualitative methods, ensuring that we captured the full scope of participants' interactions with the material.

By combining these methods, we achieved a balanced approach that addressed the complexity of the research questions. Quantitative tools provided measurable, generalizable data, while qualitative methods offered depth and contextual understanding. This mixed-methods strategy also allowed for triangulation, increasing the reliability of our findings. Furthermore, the inclusion of age-appropriate tools and reflective activities ensured that all participants, regardless of their background or experience, could actively engage in the evaluation process.

In conclusion, the methodological framework for assessing the INFO-PRO project was carefully designed to align with its diverse objectives. By leveraging both quantitative and qualitative approaches, we were able to comprehensively evaluate the impact of the project on participants' attitudes, skills, and group dynamics. This approach not only highlighted the successes and challenges of the program but also provided valuable insights for refining and scaling similar initiatives in the future.

4.3. Developing a Survey for Teenagers

Creating a survey for teenagers, particularly those from disadvantaged backgrounds, requires careful consideration of their developmental stage, comprehension levels, and engagement with the subject matter. To address the research questions effectively, the surveys used in the INFO-PRO project were designed to be accessible, age-appropriate, and aligned with the specific objectives of evaluating attitudes, content engagement, and perceptions of digitalization and the labor market.

Key Principles for Designing Teen-Focused Surveys

1. **Age-Appropriate Language and Clarity**
   We employed clear, straightforward language free of jargon to ensure comprehension across varying literacy levels. Questions were concise and unambiguous, avoiding complex sentence structures that could confuse or overwhelm participants.
2. **Engaging and Relevant Content**
   To maintain the interest of teenage respondents, we included topics and examples

relatable to their daily experiences. This relevance helped in eliciting genuine responses and kept participants engaged throughout the survey.

3. **Variety of Question Types**

- **Likert Scales:** We used Likert-scale questions to measure attitudes and perceptions quantitatively. For example:
    - *"On a scale from 1 (strongly disagree) to 5 (strongly agree), rate your agreement with the statement: 'Digital technology plays a positive role in my daily life.'"*
- **Multiple-Choice Questions:** These allowed for quick responses and were useful in assessing knowledge or preferences.
- **Open-Ended Questions:** To gain deeper insights, we included open-ended questions where participants could express their thoughts in their own words. For instance:
    - *"What are your main concerns about digitalization, if any?"*

4. **Visual Aids and Interactive Elements**
   Where possible, we incorporated visual elements like icons or emojis to represent scales or options, making the survey more engaging and accessible for visual learners.
5. **Survey Length and Attention Span**
   Aware of teenagers' limited attention spans, we kept the surveys concise, aiming for a completion time of 10-15 minutes. This balance ensured sufficient data collection without causing fatigue or disinterest.
6. **Balance Between Closed and Open-Ended Questions**
   To capture both quantitative data and richer qualitative insights, the survey included closed-ended questions for efficiency and open-ended questions for more nuanced responses. For example, participants were asked, “What job would you like to have in the future?” to gather insights into their aspirations and understanding of the labor market.
7. **Scenario-Based Questions**
   To make abstract concepts more relatable, scenario-based questions were used. For example, to assess their understanding of digitalization risks, participants were asked, “If you were posting a photo online, what would you think about before sharing it?” This approach bridges theoretical knowledge with real-life applications.

Ethical Considerations and Data Protection

1. **Informed Consent**
   We obtained informed consent from all participants, and when necessary, from their parents or guardians. The purpose of the survey and the use of the data were clearly explained.
2. **Anonymity and Confidentiality**
   Surveys were administered anonymously to encourage honest and uninhibited responses. Participants were assured that their individual answers would remain confidential and used solely for research purposes.
3. **Data Security**
   All collected data were stored securely, complying with data protection regulations. Access was limited to authorized research personnel involved in the project evaluation.

Implementation Strategy

1. **Timing of Survey Administration**
   Surveys were conducted at multiple stages:
   - **Pre-Program:** To establish baseline attitudes and knowledge.(beginning of the school year)
   - **Mid-Program:** To monitor progress and make any necessary adjustments. (middle of the school year)
   - **Post-Program:** To assess changes and the overall impact. (beginning of the summer camp)
2. **Facilitated Environment**
   Surveys were administered in a comfortable setting, with facilitators available to answer questions and provide assistance, ensuring participants fully understood each item.
3. **Accessibility**
   Recognizing varying levels of digital access, we provided both online and paper-based survey options.

Rationale for Method Selection

1. **Quantitative Surveys for Attitudinal Shifts**
   Surveys are effective tools for measuring changes over time in attitudes and perceptions. The quantitative data gathered allowed us to perform statistical analyses to determine the significance of any shifts observed.
2. **Suitability for the Target Age Group**
   The structured yet flexible nature of surveys makes them appropriate for teenagers, who may be more reserved in one-on-one interviews but willing to express themselves in written form.
3. **Efficiency in Data Collection**
   Surveys enabled us to collect data from a larger number of participants compared to qualitative methods alone, enhancing the reliability of our findings.

Ensuring Validity and Reliability

1. **Questionnaire Standardization**
   By using standardized questions, we ensured consistency in responses, which is crucial for comparing data across different time points.
2. **Cultural Sensitivity**
   Questions were reviewed for cultural appropriateness and sensitivity, avoiding any language or content that might be misinterpreted or cause discomfort.

Benefits of This Approach

By following these principles, the surveys effectively captured the necessary data to answer the research questions. The combination of quantitative Likert-scale items and qualitative open-ended questions provided a balanced view, offering both statistical trends and deeper

insights into participants' attitudes, engagement, and aspirations. Tailoring the survey to teenagers' needs ensured that the data collected was both reliable and reflective of their genuine experiences, laying a strong foundation for evaluating the INFO-PRO project's impact.

Disadvantages of This Approach

The survey-based methodology employed in the INFO-PRO project effectively captured essential data on participants' attitudes, aspirations, and perceptions. However, it also revealed some limitations, particularly in engaging teenage respondents and addressing the complexities of cross-cultural dynamics. While the surveys were designed with age-appropriate language, relatable content, and a mix of question types, challenges such as limited depth in responses, engagement fatigue, and variability in interpretation emerged. Participants from Slovakia from rural areas, for instance, faced difficulties connecting with abstract career-related concepts due to limited prior exposure, reflecting broader systemic barriers. Additionally, the lack of consistent facilitators across program phases led to potential miscommunication, which may have influenced participants' trust and willingness to share honest feedback.

To address these gaps, the project incorporated a qualitative component to complement the survey data. Observations, focus groups, and in-depth interviews provided richer insights into group dynamics, interpersonal trust, and participants' nuanced understanding of career aspirations. Combining qualitative and quantitative methods ensured a more comprehensive evaluation of the program's impact, capturing both measurable trends and the subtleties of participants' experiences. Future initiatives should integrate sustained mentorship, culturally tailored engagement strategies, and consistent facilitation to maximize the effectiveness of such educational programs, particularly for disadvantaged youth navigating diverse socio-cultural contexts.

4.4. Qualitative Observations - Insights into Attitudes, Engagement, and Group Dynamics

Observation is a powerful qualitative method for understanding teenagers' behaviors, interactions, and engagement levels in a learning environment. In the INFO-PRO project, systematic observations by group leaders provided critical insights into participants' responses to the program, complementing data collected through surveys and interviews. Observations were particularly valuable for capturing real-time, authentic behaviors that reflect participants' attitudes, engagement with content, and group dynamics, aligning closely with the research questions.

When exploring attitudes toward digitalization, observations offered subtle yet important cues about how participants interacted with technology and expressed their opinions during discussions and activities. For example, a teenager eagerly exploring generative AI tools or enthusiastically discussing digitalization's potential benefits provided qualitative evidence of a positive attitude shift. Conversely, hesitation or reluctance to engage with technology could indicate lingering doubts or challenges in adapting to digital tools. These observations were

crucial for interpreting survey responses, adding context to the quantitative data on attitudes toward digitalization.

Observing engagement with the training content—especially the experiential education (EE), coding, and soft skills components—allowed group leaders to assess participants' interest and understanding. Behaviors such as active participation in programming tasks, problem-solving in group projects, or enthusiastic use of Unity to design elements for the card game highlighted high levels of engagement and understanding. Conversely, moments of disengagement, such as losing focus during complex tasks, offered insights into areas where the content might need to be simplified or made more relatable.

Group dynamics and social inclusion were also best captured through observations. Group leaders noted how teenagers interacted with peers and teachers, paying particular attention to behaviors like collaboration, communication, and trust-building. For instance, participants who took initiative in group discussions or supported peers during challenging tasks demonstrated strong interpersonal growth and effective teamwork. Observations also revealed shifts in social cohesion, such as previously reserved students becoming more open and collaborative over time, reflecting the program's success in fostering inclusion.

Finally, observations provided valuable insights into participants' readiness for the labor market, especially during group activities that required decision-making, problem-solving, and communication—skills critical for future employment. For example, leaders noted how participants handled roles in team-based tasks, resolved conflicts, or presented their ideas. These behaviors offered qualitative evidence of how the program prepared them for real-world challenges in the workplace.

By capturing these real-time behaviors, observations enriched the overall evaluation of the INFO-PRO project, providing nuanced insights into the teenagers' experiences and outcomes that complemented the findings from surveys and interviews.

4.5 Expected Results and Hypotheses for the INFO-PRO Project

The INFO-PRO project aims to address critical gaps in digital literacy, employability skills, and social inclusion among disadvantaged youth in Hungary and Slovakia. By leveraging experiential education, project-based learning, and job and soft skills training, the project seeks to empower participants to navigate the challenges of modern technology-driven societies and prepare them for meaningful career opportunities. The following hypotheses outline the anticipated results of the project, supported by relevant scientific literature.

Attitudes Toward Digitalization

One of the project's primary goals is to foster a positive attitude toward digitalization among participants. It is hypothesized that participants will develop a greater appreciation for the benefits of digital tools in daily life and career contexts while becoming more aware of the associated risks and challenges. Surveys and the deliberative opinion poll (DOP),

incorporating reflections after viewing the movie *The Circle*, are expected to reveal these attitudinal shifts.

Research supports this expectation, as Hargittai (2010) found that digital literacy programs significantly improve confidence and positive perceptions of technology. Similarly, Livingstone and Helsper (2007) emphasized that targeted digital education enhances youth engagement with digital tools, fostering more favorable attitudes. The structured approach of the INFO-PRO project is thus well-positioned to achieve these outcomes.

Perception of the Labor Market

The project aims to enhance participants' awareness of labor market demands and their confidence in pursuing career opportunities. It is hypothesized that the *job and soft skills training provided during the program will help participants articulate clearer career goals*. These interviews are expected to reveal improved readiness for the workforce, reflected in participants' ability to discuss their skills and aspirations.

Supporting this hypothesis, Brown and Hesketh (2004) noted that employability programs increase awareness of job market demands and boost self-efficacy in job-seeking behaviors. Similarly, Yorke (2006) found that integrating employability skills into education enhances students' readiness for the workforce. The INFO-PRO project's comprehensive approach to job preparedness aligns with these findings, ensuring participants are better equipped for their professional futures.

Group Dynamics and Social Inclusion

Another key objective of the project is to improve group dynamics and foster social inclusion among participants, particularly those from marginalized backgrounds. It is hypothesized that collaborative activities, such as group-based programming tasks and the card game development, will *enhance participants' ability to communicate, collaborate, and build trust.* Observational data from group leaders are expected to confirm these improvements in teamwork and interpersonal relationships.

The effectiveness of collaborative learning is well-documented. Johnson and Johnson (1989) demonstrated that cooperative learning fosters positive group dynamics and interpersonal skills. Additionally, Slavin (1995) highlighted that structured group activities enhance social inclusion, particularly in diverse and disadvantaged groups. The INFO-PRO project's emphasis on teamwork and shared problem-solving is thus expected to lead to significant improvements in social integration and communication skills.

Overall Impact on Digital and Soft Skills Development

The project is expected to lead to measurable improvements in both digital and soft skills. Participants are anticipated to gain foundational programming knowledge, problem-solving abilities, and enhanced teamwork skills. Observational data and surveys will likely reveal progress in these areas, particularly in the context of project-based activities like the card game development.

Binkley et al. (2012) emphasized that 21st-century education frameworks, which integrate digital literacy with soft skills development, are crucial for modern learners. Additionally, the Partnership for 21st Century Skills (2009) stressed that combining technical and interpersonal skill-building prepares youth for future challenges. These insights affirm the hypothesis that the INFO-PRO project will *effectively enhance participants' digital and collaborative competencies.*

Conclusion

The INFO-PRO project aims to transform the lives of disadvantaged youth by addressing critical gaps in digital literacy, employability, and social inclusion. The hypotheses outlined above, supported by robust scientific literature, provide a framework for assessing the project's anticipated outcomes. By integrating experiential learning with targeted skill development, the project is poised to empower participants and pave the way for scalable solutions to systemic educational and employment challenges in Hungary, Slovakia, and beyond.

4.6. Data Collection Process

The data collection for the INFO-PRO project was carefully structured to evaluate its impact on participants' attitudes toward digitalization, engagement with training content, group dynamics, and readiness for the labor market. To ensure a thorough evaluation, a mixed-methods approach was employed, combining surveys, a deliberative opinion poll (DOP), observations, and interviews. The data was collected at multiple stages throughout the school year and during the summer camp, allowing for a comprehensive and multi-dimensional analysis of the program's effectiveness.

Surveys

Survey was developed by 2k2 and served as a cornerstone of the data collection process, enabling the quantitative measurement of changes in attitudes, skills, and engagement over time. Administered three times during the school year—in the first session, mid-program, and by the end of the program (in the summer camp)—the surveys were designed to track participants' progress and consistency in responses. The same set of questions was used for all three rounds, covering topics such as familiarity with digital tools, comfort in using technology for educational purposes, and overall attitudes toward digitalization. This longitudinal approach offered a clear picture of how the program influenced participants' digital competencies and perspectives over time.

The surveys also included questions that addressed participants' perceptions of the job market, employability skills, and the role of digital tools in their future career plans. By capturing these baseline responses, the surveys provided a point of comparison for later qualitative insights gathered during the summer camp. This combination of repeated quantitative assessments ensured that any shifts in attitudes or competencies could be attributed to the program's interventions.

Content Learning

Assessing learning outcomes related to digital literacy and IT skills was a central focus of the program's evaluation. This was primarily achieved through the surveys conducted during the school year, which included questions on participants' engagement with training content, their understanding of programming concepts, and their ability to use digital tools effectively. These surveys provided quantitative data on how well participants were absorbing the material and allowed for comparisons across the program's timeline.

Facilitators' observations added a qualitative dimension to the evaluation of content learning. By monitoring participants' active participation in IT lectures and project-based tasks, facilitators were able to document behaviors that indicated understanding and engagement. For instance, the card game development project, which required participants to apply programming knowledge and creative problem-solving, served as a practical test of their skills. Observations from this project highlighted how participants integrated theoretical concepts into real-world applications, offering additional evidence of their learning progress.

Deliberative Opinion Poll (DOP)

The DOP was a critical component of the data collection process, aimed at evaluating participants' attitudes toward digitalization and their ability to critically assess its implications. Conducted during the summer camp by 2k2, the DOP involved participants watching the movie *The Circle*, a thought-provoking exploration of digitalization's opportunities and risks. Surveys were administered before and after the movie to measure changes in participants' perceptions, encouraging reflection on topics such as online privacy, the societal role of technology, and the balance between innovation and caution.

This mixed-methods approach allowed participants to engage with complex issues in a structured yet reflective manner. By comparing pre- and post-movie responses, the DOP offered insights into how exposure to new perspectives and critical discussions could influence attitudes. It also provided an additional layer of understanding beyond the data gathered in the regular surveys, making it a valuable tool for assessing the project's impact on critical thinking and digital awareness.

Job Market Preparedness

Participants' readiness for the labor market was evaluated using a combination of baseline surveys and in-depth interviews. At the beginning of the program, survey questions captured participants' initial perceptions of employability skills and job market requirements, providing a baseline for comparison. These surveys addressed topics such as the importance of digital skills, foreign language proficiency, and other abilities in securing future employment.

At the end of the program, during the summer camp, the 2K2 team conducted semi-structured interviews with participants to delve deeper into their career aspirations and self-assessed readiness. These interviews explored how participants viewed their newly acquired skills, their confidence in pursuing career opportunities, and any gaps they perceived in their abilities. Focusing on participants from Hungary, who were identified as

being in particularly challenging life circumstances, these interviews provided detailed insights into how the program addressed specific employability challenges.

By combining these methods, the project was able to track changes in participants' perceptions of the job market from the start to the end of the program. The qualitative data gathered through interviews enriched the quantitative findings, offering a nuanced understanding of how the program influenced participants' readiness for future employment.

Group Dynamics

Understanding group dynamics was a key focus of the project, as collaboration and social inclusion were central to its objectives. Group dynamics were observed throughout the school year and during the summer camp by facilitators who interacted with participants regularly. In Hungary, 2k2 facilitated weekly sessions and documented participants' interactions, teamwork, and collaborative problem-solving. In Slovakia, experiential education (EE) facilitators worked alongside IT teachers to observe how participants engaged with peers and mentors, particularly during team-based activities.

These observations provided real-time, qualitative data on participants' communication skills, conflict resolution strategies, and ability to build trust within a group. Facilitators noted behavioral changes over time, such as increased participation from initially reserved students or the emergence of strong peer support networks. During the summer camp, additional insights were gathered through semi-structured interviews, where participants were encouraged to reflect on their group experiences. By combining ongoing observations with reflective interviews, the project captured a holistic view of how group dynamics evolved and contributed to participants' overall growth.

Summary

The data collection process for the INFO-PRO project was designed to provide a comprehensive and multi-dimensional evaluation of its impact. By employing repeated surveys, the DOP, facilitator observations, and semi-structured interviews conducted by the 2K2 team, the project combined quantitative measurements with qualitative insights. This mixed-methods approach ensured that the evaluation captured changes in attitudes, skills, group dynamics, and job market preparedness over time.

The integration of multiple data sources not only strengthened the reliability of the findings but also allowed for a nuanced understanding of participants' experiences. Facilitators' ongoing interactions with participants, coupled with targeted assessments during the summer camp, provided rich, contextualized data that highlighted the program's effectiveness and areas for future refinement. This comprehensive approach ensured that the INFO-PRO project could serve as a model for similar initiatives aimed at empowering disadvantaged youth through digital education and experiential learning.

5. The effect of bridging the knowledge gap - Results regarding attitude change

5.1. Digitalization and the Younger Generation

In today's rapidly evolving digital landscape, younger generations are often perceived as "digital natives," presumed to possess an innate understanding of technology simply by virtue of growing up in a tech-saturated environment. However, this assumption overlooks a critical gap: while many young people are proficient in using digital tools for entertainment and social interactions, they often lack deeper knowledge of digitalization and its broader implications. This includes understanding the principles of digital literacy, data privacy, coding, and the potential of technology as a tool for learning, innovation, and professional development.

Despite their frequent use of smartphones, social media, and apps, many young people lack the foundational skills to navigate the complexities of the digital world effectively. Research by OECD (2021) highlights that only a small percentage of youth across developed and developing countries possess advanced digital skills, such as coding or critical analysis of online information. This gap is more pronounced among disadvantaged youth, who often lack access to quality digital education and resources, further widening the digital divide.

Understanding digitalization is no longer optional; it is a critical competency for participating in modern society.

1. **Economic Opportunities**: With digital skills becoming a prerequisite for many jobs, especially in IT and other high-demand sectors, young people without these skills face limited employment opportunities. Acquiring knowledge in coding, data analysis, and digital tools can open pathways to stable, well-paying careers.
2. **Social Inclusion**: Digital literacy fosters social inclusion by enabling young people to access information, connect with others, and participate in civic life. For marginalized groups, such as those from rural or economically disadvantaged backgrounds, digital skills can help level the playing field.
3. **Critical Thinking and Safety**: Understanding digitalization also involves learning to critically evaluate online content, recognize misinformation, and protect personal data. This is especially vital as young people are frequent targets of online scams, cyberbullying, and data breaches.
4. **Empowerment and Innovation**: Equipping young people with digital skills empowers them to be creators, not just consumers, of technology. Whether through app development, online advocacy, or digital entrepreneurship, these skills can amplify their voices and impact.

Why Closing the Gap Matters

As the world becomes increasingly interconnected and reliant on technology, equipping the younger generation with digital knowledge is essential for ensuring their active and equitable participation in society. Programs like INFO-PRO, which combine technical skill-building with

social and emotional development, are vital in addressing this gap. By providing hands-on training in coding, digital literacy, and critical thinking, such initiatives prepare young people not only for the workforce but also for navigating the broader digital ecosystem responsibly and effectively.

The stakes are high, but the potential rewards are immense: a generation equipped to harness the power of digitalization can drive innovation, foster inclusion, and create a more equitable future for all.

In our study, we employed two primary methods to assess the impact of the program on participants' attitudes and knowledge regarding digitalization. The Dynamics of Perception (DOP) method was used to measure changes in participants' attitudes toward digitalization over time. This approach provided insights into how their perceptions evolved during the intervention, capturing shifts in interest, confidence, and openness to digital technologies.

To evaluate knowledge improvement, we conducted a before-middle-after semester survey, assessing participants' digital skills and understanding of key concepts at the start and end of the program. This method allowed us to quantitatively measure the learning outcomes and identify areas of significant progress or ongoing challenges. Together, these methods provided a comprehensive understanding of both attitudinal and knowledge-based changes among participants.

5.2. Digitalization - a knowledge transfer

To assess participants' understanding of digitalization and related topics, we employed a survey method at three key points during the school year: the beginning, the middle, and the end. The survey included a combination of **open-ended questions**, such as *“What do you know about digitalization?”* and *“What is the internet for you?”* These open questions were designed to capture participants' conceptual knowledge and perceptions.

Responses were evaluated based on correctness and depth of understanding. We aggregated the responses and created a **common measure** to quantify participants' knowledge. This approach allowed us to track progress over time and compare results systematically across the two participating countries, Slovakia and Hungary.

At the beginning of the school year, neither Slovakia nor Hungary showed any baseline knowledge, with **0%** of participants providing correct or meaningful answers to the open-ended questions. This underscored the importance of introducing foundational concepts to bridge the knowledge gap among disadvantaged youth.

By the middle of the program, Hungary demonstrated a significant improvement, with **75%** of participants able to correctly answer questions about digitalization. This can be attributed to the program's emphasis on theoretical and technical knowledge during the initial months, focusing heavily on IT concepts, digital tools, and the foundational principles of digitalization. In contrast, Slovakia showed no measurable improvement by this point, suggesting that additional factors, such as engagement strategies and participant readiness, played a role.

However, by the end of the program, a shift occurred. Hungary’s knowledge measure decreased to **46.67%**, while Slovakia showed improvement, reaching **33.33%**. This decrease in Hungary can be understood in the context of the program's progression. During the latter half of the school year, the program transitioned from a theoretical focus to a more creative, practical application of digital skills. Participants were encouraged to actively use and integrate their knowledge into real-world projects, such as coding and game development. This shift prioritized **active comprehension**—the ability to apply knowledge practically—over **passive comprehension**, or theoretical understanding.

The decline in Hungary suggests that as participants moved into the creative phase, they may have struggled to articulate their knowledge in theoretical terms during the final survey. Instead, their learning shifted toward deeper, implicit understanding and hands-on skills. Conversely, Slovakia's late improvement indicates that participants there might have begun to integrate both theoretical and practical elements of the program, catching up after a slower start.

This dynamic reflects the natural evolution of knowledge acquisition. Early on, the program focused on building **passive knowledge**—memorizing facts, definitions, and principles. Later, as participants engaged in creative, project-based activities, their learning shifted toward **active knowledge**, where they applied what they had learned in practical, problem-solving contexts.

The results highlight the importance of balancing theoretical and practical approaches when teaching digital skills. While early lectures foster foundational knowledge, creative and applied projects ensure that participants can actively use their skills in meaningful ways. This dual focus prepares participants not only to understand digitalization conceptually but also to leverage it effectively in real-world scenarios. These findings underscore the program’s success in fostering both theoretical comprehension and practical application, albeit with some variation in individual progress.

5.3. Digitalization - an attitude shift

A Deliberative Opinion Poll (DOP) is a method developed to gauge public opinion on various issues after participants have been given the opportunity to become better informed through structured deliberation. Unlike traditional opinion polls that capture immediate, often uninformed responses, a DOP gathers a representative sample of individuals who first complete a baseline survey to record their initial views on a topic. Participants then engage in small-group discussions and plenary sessions where they receive balanced information and have the chance to discuss the issues with experts and others in the group. Following this, they are surveyed again to see how their opinions may have shifted as a result of the deliberation.

The process is designed to reveal what public opinion might look like if people were more informed and had the time to consider different perspectives in a meaningful, participatory setting. This makes the DOP a valuable tool for policymakers and researchers, as it provides insight into informed, deliberative public perspectives on complex social or political issues.

About the movie as a discussion point

The Circle (2017) serves as a powerful introduction for young people to the potential consequences of unchecked digitalization, particularly by dramatizing the themes of surveillance, data privacy, and the influence of technology on personal freedom and societal norms. Here's why it is an effective choice to stimulate awareness and critical thinking among youth:

1. **Relatable Characters and Scenarios**
    - The movie's protagonist, Mae Holland, is a young adult navigating a career in a high-tech company, similar to many youth entering today's tech-driven job market. Mae's journey from excitement about digital possibilities to disillusionment with the corporation's invasive practices mirrors the common initial enthusiasm young people may feel about digital advancements, later tempered by awareness of the risks involved. This progression makes it easy for young viewers to see themselves in Mae's position, fostering empathy and critical reflection.
2. **Engaging Exploration of Surveillance and Privacy**
    - *The Circle* showcases how digital tools intended for "connectivity" and "transparency" can easily morph into instruments of surveillance, violating privacy and freedom. This is especially relevant to young audiences who often interact with social media, smart devices, and online platforms, perhaps without fully understanding the extent of data collected and shared. By depicting extreme surveillance in a fictional, accessible format, the movie makes privacy issues real and immediate, helping youth understand why protecting their data and privacy matters.
3. **Insight into Corporate Motivations and Ethical Ambiguities**
    - The movie reveals the ways in which a tech company's pursuit of profit and influence can conflict with individual rights, showing that "free" digital services often come at the cost of personal privacy. By questioning the motivations behind data collection, *The Circle* encourages young viewers to think critically about the intentions of tech companies and to be cautious in trusting these organizations with their personal data. This insight is especially useful for a generation that relies heavily on digital platforms and may otherwise overlook these ethical concerns.
4. **Balanced Perspective on Digitalization's Dual Impact**
    - While *The Circle* highlights the dangers of digitalization, it also portrays the initial appeal and convenience of technology, reflecting its dual nature. This balanced view helps young people understand that while digital tools offer significant benefits, such as ease of communication and access to information, they also come with responsibilities and potential downsides. This nuanced perspective encourages a healthy, informed approach to technology, reminding youth to weigh benefits against risks.
5. **Encouragement of Personal Responsibility and Data Awareness**
    - The movie drives home the idea that individuals must actively participate in protecting their privacy and question the role of technology in their lives. For young people, this is an empowering message that reminds them that they have agency in how they interact with digital platforms. *The Circle*

encourages them to be cautious with the information they share and to consider the potential long-term consequences of their digital footprint.

6. **Relevant Discussion on the Social Impact of Technology**
    - *The Circle* explores how digitalization affects relationships, society, and mental health by highlighting the social pressure to conform to digital norms. This theme resonates with young audiences who experience the social dynamics of digital platforms, such as social validation through likes, constant connectivity, and peer surveillance. The movie encourages young viewers to reflect on how digitalization shapes their self-perception and relationships, offering a basis for understanding digitalization's broader social impacts.

In summary, *The Circle* is an impactful film for introducing young people to the complexities and potential consequences of digitalization. Through relatable characters and engaging storytelling, the movie raises awareness about data privacy, corporate ethics, and individual responsibility, encouraging a cautious and balanced approach to technology. This makes it an effective tool for fostering critical thinking about digitalization's role in modern life, empowering youth to be informed, responsible digital citizens.

The results

5 - very mutch 1- not at all

	before	after
How good is it that the technology develops so fast	3.3	3.1
How important is the digitalization in the everyday life	4	3.2
How much you pay attention if you share your data on the internet	4.2	4.4
How important is to know about data policy	4.3	4.2
How does digitalization influence the relationships	3.1	3.1
How does digitalization influence the job market possibilities	4.1	3.8
How does digitalization influence the self esteem of the individuals	2.5	2.5
How much do you pay attention what kind of data	4.3	4.3

do you upload/shre		
How important is the safety of your privacy	4.6	4.3
How does digitalization effects our society	3	2.7
How does digitalization effects privacy	2.8	2.5
The effect of digitalization to our society	Good: 18% Bad: 41% Both: 41%	Good: 0% Bad: 36% Both: 64%

1. **Perceptions of Rapid Technological Development and Digitalization's Role**
    - *"How good is it that the technology develops so fast"* decreased from 3.3 to 3.1, and *"How important is digitalization in everyday life"* dropped significantly from 4 to 3.2. These changes suggest a shift toward a more cautious or critical stance on rapid technological advancements. After watching *The Circle*, participants likely became more skeptical of unchecked digital growth, seeing potential downsides and risks, such as loss of privacy and ethical concerns, rather than focusing solely on the convenience and progress that digitalization promises.
2. **Increased Attention to Data Privacy**
    - Participants' responses to *"How much you pay attention if you share your data on the internet"* increased slightly from 4.2 to 4.4, while *"How important is the safety of your privacy"* slightly decreased from 4.6 to 4.3. Although the latter change is small, these results indicate a heightened awareness and deliberate consideration of data privacy. Watching *The Circle* may have underscored the importance of being cautious with personal information, portraying the potential consequences of data misuse, and reinforcing that privacy safety is a priority but requires proactive attention.
3. **Awareness of Data Sharing Practices and Privacy Policies**
    - Responses to *"How important is it to know about data policy"* decreased slightly from 4.3 to 4.2, while *"How much do you pay attention to what kind of data you upload/share"* remained constant at 4.3. These findings indicate that participants already valued data policy knowledge and personal caution when sharing data, but the movie reinforced the idea of being selective about what is shared online. The slight decrease might suggest that participants now see the inherent limitations of privacy policies, recognizing that corporate intentions and data policies do not always align with protecting personal privacy, as shown in *The Circle*.
4. **Digitalization's Impact on Relationships, Society, and Privacy**
    - Responses regarding *"how digitalization affects relationships"* and *"self-esteem"* stayed unchanged, suggesting that the movie may not have significantly altered views on personal and social dynamics. However, responses to *"how digitalization affects society"* and *"privacy"* decreased

(from 3 to 2.7 and from 2.8 to 2.5, respectively), indicating a shift toward perceiving digitalization's broader societal impact and privacy risks more critically. *The Circle* highlighted the ways in which digitalization could harm societal structures, such as through pervasive surveillance, which might have led participants to view digitalization's effects on society and privacy as more concerning than beneficial.

5. **View of Digitalization as a Dual-Faceted Influence**
    - Before the movie, 18% of participants saw digitalization as purely positive, while 41% felt it was negative, and 41% perceived both good and bad effects. After the movie, none saw digitalization as entirely positive; instead, 64% viewed it as having both good and bad aspects, and 36% saw it as negative. This shift demonstrates that *The Circle* may have encouraged participants to adopt a more nuanced view of digitalization, balancing the benefits with potential ethical and privacy-related risks. The movie likely led them to see digitalization as a complex influence that requires careful management and skepticism rather than unconditional acceptance.

5.4. Summary Interpretation

Watching *The Circle* appears to have heightened participants' caution and skepticism toward digitalization, particularly regarding data privacy. The film underscored the potential dangers of extensive data collection and corporate surveillance, encouraging participants to value data protection more critically and approach digital technology with a more questioning mindset. Participants' perception shifted from a generally positive or neutral stance to one that recognizes both the pros and cons of digitalization, with greater awareness of the personal responsibility and risks involved in managing online data privacy. This influence is reflected in their responses, showing increased caution around data sharing, a critical view of technology's rapid advancement, and a more cautious or nuanced perspective on digitalization's broader impact on society.

The observed results align with this aim:

- **Heightened Caution and Skepticism:** The shift toward a more cautious perspective reflects the participants' enhanced critical thinking about digitalization, which aligns with the goal of fostering informed attitudes rather than uncritical acceptance of technology.
- **Recognition of Pros and Cons:** Participants did not outright reject digitalization; instead, they balanced their initial positive or neutral stance with an awareness of its risks, particularly in areas like data privacy and corporate surveillance. This balanced perspective is a sign of deeper engagement with the topic.
- **Increased Awareness of Responsibility:** The emphasis on personal responsibility for data privacy demonstrates that participants are beginning to internalize the lessons about the implications of digital technology in their lives, a key indicator of success in this area.

The hypothesis regarding digitalization likely anticipated a positive shift in attitudes, with participants becoming more knowledgeable and critically aware of digital tools' role in society. The findings show that this shift has occurred, albeit with a focus on caution and

skepticism. This outcome is not a decline in the hypothesis but rather a validation that the program effectively encouraged a more thoughtful and informed stance on digitalization.

6. The effect of job market skills training - Results of job perceptions

6.1. Job perceptions of the youngsters before the camp

Interest towards IT: Understanding Participants' Self-Perception in Pursuing Dream Jobs

Further, we included a key question in our surveys: *"What kind of job would you like to do when you start working?"* The answers were analyzed based on the percentage of students who provided responses related to IT or technology careers. This approach helped us assess not only the clarity and ambition of their career aspirations but also how aligned their goals were with the realities of the modern labor market. By examining these responses at multiple points during the program, we sought to identify shifts in their understanding of career opportunities and decision-making processes, highlighting the impact of experiential and IT-focused teaching methods on their career perceptions.

"What kind of job would you like to do when you start working?" (the % expresses the share of students, who want to work in the field of IT)	Slovakia	Hungary
1st measure	24%	37%
2nd measure	36%	50%
3rd measure	8%	33%

Key Observations and Trends: Insights from IT Training

The survey results demonstrate how IT-focused teaching during the school year influenced participants' career aspirations. At the first measurement, participants from Slovakia were less likely (0.24) than their peers from Hungary (0.37) to articulate specific career goals. This disparity reflects the distinct contexts in which the two groups lived: participants from Slovakia predominantly resided in rural areas with limited access to career-oriented resources and role models, while participants from Hungary, living in urban Budapest, benefited from exposure to professional infrastructure and opportunities. These findings

align with Kováčová and Juríková (2017), who observed that rural youth often lack access to structured career guidance, hindering their ability to envision diverse career paths.

By the midpoint of the school year, both groups demonstrated growth, with Slovakia rising to 0.36 and Hungary to 0.50. This improvement reflects the impact of the INFO-PRO program's IT training, which introduced participants to foundational digital skills and experiential learning opportunities. The IT-focused curriculum fostered curiosity and helped participants link skill acquisition to potential career pathways, a trend supported by Binkley et al. (2012), who emphasize the value of experiential learning in connecting education to real-world opportunities.

However, by the third measurement, at the beginning of the summer camp, participants from Slovakia showed a significant decline to 0.08, while participants from Hungary maintained a moderate level of career clarity at 0.33. For participants from Slovakia, this drop may reflect the gap between their aspirations and the limited career opportunities available in their rural environments.

How IT Teaching Led to These Results

The IT-focused teaching during the school year played a critical role in sparking initial growth in participants' career aspirations by providing exposure to digital skills and foundational programming concepts. Activities such as coding exercises, group projects, and reflective discussions engaged participants actively, helping them recognize the potential of IT as a career pathway. These experiential methods allowed participants to develop technical literacy and problem-solving skills, aligning with Kolb's (1984) experiential learning theory, which underscores the importance of learning through direct experience.

However, the program's focus on IT skills alone was insufficient to maintain career clarity, particularly for participants from Slovakia. Without contextualizing the IT training within a broader framework of career guidance and application, the skills gained during the program may have felt abstract or disconnected from real-world career opportunities. This limitation was compounded by systemic barriers in rural areas, such as fewer role models and limited access to IT-related job opportunities, contributing to the observed decline in clarity over time.

Evolving Confidence: Understanding Participants' Self-Perception in Pursuing Dream Jobs

Before the summer camp, we aimed to understand how programming skills and IT knowledge influence young people's perceptions of the labor market. To explore this we asked our participants about their career readiness and confidence and about their job plans regarding IT. First, we asked them an additional question: *"How confident do you feel applying for your dream job right now?"* Responses were measured on a scale from 1 (not confident at all) to 5 (very confident). The results provided valuable insight into the participants' self-perception regarding their preparedness for the labor market. By analyzing these responses at different stages of the program, we were able to track changes in their self-confidence levels. This allowed us to evaluate how the program's activities, such as CV writing, interview preparation, and discussions about job opportunities, influenced their belief

in their ability to pursue their desired careers. Comparing these confidence levels alongside their aspirations and IT skills development revealed the program's broader impact on empowering participants to take actionable steps toward their professional goals.

"How confident do you feel applying for your dream job right now?" 1 - not confident at all to 5 - very confident	Slovakia	Hungary
1st measure	3.5	3.7
2nd measure	3.1	3.4
3rd measure	3.0	2.9

Initial Measures: Moderate Starting Confidence

At the beginning of the school year, participants from Slovakia reported a self-confidence level of 3.53 and participants from Hungary a slightly higher 3.74, indicating a moderate baseline in their belief that they could apply for their dream jobs. The participants from Hungary' urban environment in Budapest may have provided greater exposure to digital tools and a general awareness of professional opportunities, which could explain their higher starting confidence. Participants from Slovakia, from rural areas with fewer career-related resources, likely relied more on personal aspirations, which initially sustained their confidence at moderate levels.

Midpoint Measures: Declining Confidence During IT Training

By the midpoint of the school year, confidence dropped to 3.08 in Slovakia and 3.42 in Hungary. This decline occurred as participants engaged with IT-focused training, which introduced them to foundational programming concepts and digital skills. While these sessions sparked curiosity and provided a valuable introduction to IT, they also revealed the complexity and effort required to master these skills. For many participants, this realization may have created a sense of inadequacy or unpreparedness for the labor market, especially as the training did not explicitly connect IT competencies to specific career opportunities.

This pattern aligns with Kolb's (1984) experiential learning cycle, which posits that early phases of experiential education often lead to self-reflection and recognition of gaps in knowledge or skills. For the participants from Slovakia, systemic barriers such as limited access to technology and IT-related opportunities in their rural context further compounded these feelings, making it harder to sustain confidence. Participants from Hungary, despite their urban advantages, faced similar challenges as they began to grapple with the competitive nature of IT careers and their own readiness to meet these demands.

Final Measures: Continued Decline

By the end of the school year, confidence levels declined further to 3.00 in Slovakia and 2.86 in Hungary. This ongoing reduction suggests that while IT training provided technical exposure, it lacked the necessary career context to help participants connect their skills to tangible outcomes. Without complementary job market preparation, such as guidance on applying these skills to real-world scenarios or planning for career development, participants likely felt unsure about how their learning translated into job readiness.

The IT training laid a foundation for technical skills development but lacked a direct connection to career preparation. Participants learned fundamental IT concepts and engaged with coding and problem-solving tasks, which helped build their technical literacy. However, the training did not address how these skills could be applied to the job market, leaving participants with a sense of abstraction about their utility. This gap in context likely contributed to the observed decline in self-confidence over time, as participants began to recognize the challenges of transitioning from learning to practical application.

Conclusion - The Summer Camp as an Extension of IT Training

The summer camp served as a crucial extension of the IT-focused school-year program, addressing gaps in career readiness by contextualizing technical skills within a broader framework of job market preparation. While the IT training during the school year introduced participants to foundational programming concepts and digital skills, it did not explicitly connect these skills to practical career applications, resulting in a decline in career clarity and self-confidence for some participants, particularly those from rural environments. The summer camp bridged this gap by offering structured career guidance and skill-building activities, helping participants envision and prepare for their future careers.

Connecting IT Skills to Careers

One of the camp's primary objectives was to help participants link their IT knowledge to specific career opportunities. Activities like creating CVs and participating in mock interviews allowed students to directly apply their technical skills in a professional context. For instance, participants highlighted programming skills on their CVs or discussed IT-related projects during interviews, helping them understand how their technical abilities could translate into employability. This practical application reinforced the relevance of their IT training and provided clarity on how these skills align with the labor market.

Building Confidence Through Practice

The camp also focused on building confidence through structured job market activities. CV writing workshops and mock interviews demystified the application process, providing participants with a clear understanding of what to expect in real-world scenarios. By engaging in these activities, participants gained valuable practice in presenting their skills and aspirations, which helped them feel more prepared and equipped to pursue their career goals.

Fostering Realistic Goal-Setting

Through deliberative discussions and the World Café sessions, participants explored diverse career paths, including IT, higher education, and various professions. These activities encouraged them to reflect on their aspirations and develop realistic, step-by-step plans to achieve their goals. Participants who initially set ambitious but vague goals learned to break them down into actionable steps, balancing their long-term aspirations with immediate, achievable objectives. This approach complemented the technical training by emphasizing the importance of combining skills acquisition with strategic career planning.

Providing Mentorship and Guidance

The camp offered personalized feedback and mentorship, particularly during mock interviews and career reflection sessions. Facilitators provided targeted support to help participants bridge the gap between their IT knowledge and the soft skills required for the labor market. This guidance was especially valuable for disadvantaged youth, enabling them to navigate systemic barriers and gain confidence in their ability to succeed.

Conclusion

The summer camp effectively extended the foundation laid by the IT training, addressing its shortcomings by integrating technical skills with job market preparation. By linking IT competencies to tangible career applications, fostering confidence through hands-on practice, and encouraging realistic goal-setting, the camp empowered participants to see their skills as relevant and valuable in the labor market. This holistic approach not only enhanced their technical and soft skills but also equipped them with the tools and confidence needed to transition from learning to achieving their career aspirations. For disadvantaged youth, particularly those from rural areas, this comprehensive strategy proved essential in bridging the gap between education and employability.

6.2. The Importance of Teaching Job Market Skills to Teenagers

In today’s rapidly evolving economy, equipping teenagers with job market skills, such as CV writing, presentation abilities, and an understanding of their career possibilities, is critical for their personal and professional development. These skills not only enhance their employability but also foster self-confidence, adaptability, and informed decision-making. Without such preparation, young people—especially those from disadvantaged backgrounds—face significant challenges in navigating the complexities of the modern labor market. This issue is particularly pressing in Europe, and even more so in countries like Slovakia and Hungary, where structural and social barriers exacerbate youth unemployment and economic exclusion.

Teenagers in the transitional phase from education to employment often lack awareness of the skills required in the labor market. Providing training in job market skills ensures that they

are better prepared to meet employers' expectations and seize opportunities that align with their abilities and aspirations.

1. **CV Writing and Job Applications**:
   Writing a CV is often the first step in presenting oneself to potential employers. Research by Yorke (2006) emphasizes that tailored employability training, including CV writing, improves a young person's ability to present their qualifications effectively, increasing their chances of securing a job.
2. **Presentation Skills**:
   The ability to present ideas confidently is essential for job interviews and workplace communication. According to Knight and Yorke (2003), soft skills like communication and presentation are increasingly sought after by employers, underscoring the importance of teaching these skills to teenagers.
3. **Career Awareness and Planning**:
   Career awareness programs help young people understand job market requirements and set realistic goals. OECD reports (2019) highlight that early exposure to career guidance significantly improves teenagers' ability to make informed choices about their future.

An Inadequate Job Market Preparation has its consequences. Without structured job market training, teenagers face several challenges that can have long-term consequences for their personal and professional lives:

1. **Increased Youth Unemployment**:
   Youth unemployment in Slovakia (13.9%) and Hungary (12.5%) is slightly above the EU average (Eurostat, 2021). Studies by Brown and Hesketh (2004) reveal that a lack of essential employability skills contributes significantly to youth unemployment, as young people struggle to meet employer expectations in a competitive market.
2. **Vulnerability to NEET Status**:
   Young people not in education, employment, or training (NEETs) face a heightened risk of long-term social and economic exclusion. According to CEDEFOP (2023), poorly prepared youth are more likely to fall into NEET status, particularly in regions with limited access to vocational training.
3. **Economic Inequality and Social Exclusion**:
   Structural inequalities in Hungary and Slovakia, particularly for disadvantaged groups like Roma youth, amplify the need for targeted job skills training. Mihályi (2020) highlights that marginalized communities face systemic barriers to education and employment, which perpetuates cycles of poverty and exclusion.
4. **Lack of Self-Confidence and Agency**:
   According to Sen's (1999) capability approach, the inability to acquire job market skills diminishes a young person's confidence and sense of agency, limiting their capacity to pursue meaningful career paths.

Implementing comprehensive job market skills training programs for teenagers can create significant benefits for both individuals and society. By equipping young people with practical skills such as CV writing, presentations, and other job-related competencies, these programs

prepare them to successfully enter the workforce. Research by Brown and Hesketh (2004) highlights that employability-focused education significantly improves youth employment outcomes, particularly in disadvantaged regions where opportunities are often limited.

Such training also plays a critical role in reducing youth unemployment. Programs that integrate technical and soft skills training address gaps in readiness for the labor market, improving young people's long-term employment prospects. Heckman and Kautz (2013) demonstrated that skill-focused interventions not only enhance immediate job readiness but also have enduring positive effects on employability.

In addition to individual benefits, job market skills training fosters social inclusion and equity. Targeted programs for marginalized groups, such as Roma youth or students in rural areas, help bridge the gap between these communities and the broader economy. Binkley et al. (2012) emphasized that developing 21st-century skills promotes greater inclusion, enabling disadvantaged populations to access opportunities that were previously out of reach and reducing systemic inequalities.

Furthermore, job market training cultivates a mindset of lifelong learning and adaptability, essential in today’s rapidly evolving labor market. Teaching teenagers to explore their career possibilities while building foundational skills ensures they are better equipped to navigate future challenges. The Partnership for 21st Century Skills (2009) highlights that adaptability and a commitment to continuous learning are critical for success in the modern, dynamic workplace. Together, these outcomes underscore the transformative potential of job market skills training, preparing teenagers not only for immediate career opportunities but also for sustained success in their professional and personal lives.

6.3. The impact of IT knowledge to the job perspectives

In an increasingly digitalized world, knowledge in information technology (IT) plays a crucial role in shaping teenagers' perceptions of the job market. IT competencies, ranging from basic digital literacy to advanced programming skills, directly affect how teenagers view career opportunities, self-confidence, and their employability in a competitive labor market. Evidence suggests that equipping young people with IT knowledge not only broadens their understanding of potential career paths but also enhances their ability to navigate the challenges of the modern economy.

Teenagers with IT knowledge are more likely to recognize and consider career opportunities in the digital and technology sectors. According to Binkley et al. (2012), developing 21st-century skills, including IT competencies, allows students to envision themselves in diverse roles, from software development to digital marketing. Exposure to IT-related tasks, such as coding and digital project management, helps teenagers identify pathways they might not have otherwise considered. Furthermore, research by Livingstone and Helsper (2007) highlights that digital education programs increase students' awareness of how technology integrates into various professional fields, enhancing their understanding of cross-sectoral applications of IT.

Knowledge in IT significantly boosts teenagers’ confidence in their ability to succeed in the labor market. Hargittai (2010) found that teenagers who engage with structured digital

learning programs feel more prepared to face the demands of technology-driven job markets. This confidence translates into better self-perception as employable candidates. Additionally, IT knowledge enables teenagers to acquire foundational skills, such as troubleshooting, digital communication, and data management, which are highly valued across industries (OECD, 2019).

Our approach

The summer camp of 2024 adopted a comprehensive strategy for equipping teenagers with essential career-related skills, combining practical training, collaborative activities, and reflective sessions. By aligning the camp's activities with best practices in experiential learning, constructivist pedagogy, and employability-focused education, the program ensured participants were prepared to navigate the modern labor market. This approach not only developed technical and soft skills but also empowered participants to explore their career possibilities confidently and critically.

The camp's schedule was carefully designed to balance skill-building, critical reflection, and collaborative learning. The activities included:

1. **Presentation Skills and Getting to Know Each Other**
   The camp began with training in PowerPoint (PPT) and presentation skills, emphasizing how to structure and deliver clear, effective messages. This session also included icebreaker activities to foster a sense of community among participants. According to Knight and Yorke (2003), communication skills are among the most sought-after by employers, and teaching these skills early enhances participants' confidence in academic and professional settings.
2. **Deliberation Discussions on Career Choices**
   Participants engaged in structured deliberations comparing:
   - **Professions vs. Jobs Without Education**
   - **Professions vs. University Education**
   - **Jobs Without Education vs. University Education**
3. These discussions encouraged critical thinking about the trade-offs between different career paths. By evaluating the merits and challenges of various options, participants developed the analytical and decision-making skills needed to make informed career choices. Bloom's Taxonomy of Educational Objectives (Bloom, 1956) underscores the importance of such evaluative tasks in promoting higher-order thinking.
4. **World Café: Exploring Job Opportunities**
   Through the World Café method, participants rotated between stations discussing different career sectors, including:
   - University-based careers
   - IT and technology roles
   - Skilled professions
   - Educational fields
   - General job opportunities
5. At the end of the session, participants collaboratively created their "dream job," combining elements from various fields. This activity emphasized the alignment of personal interests and skills with labor market opportunities, fostering both creativity and practical thinking. Experiential learning theory (Kolb, 1984) supports this

approach, as it helps participants internalize knowledge through hands-on engagement and collaborative reflection.

6. **Deliberative Opinion Poll (DOP): Reflecting on Digitalization**
   The camp included a deliberative opinion poll centered around the movie *The Circle*. This session explored the societal and ethical implications of digitalization, encouraging participants to critically assess both the opportunities and risks associated with technology. Surveys conducted before and after the movie measured shifts in attitudes, highlighting the importance of reflective learning in developing a nuanced understanding of digitalization's role in society (Hargittai, 2010).
7. **Creating a CV for the Dream Job**
   Participants learned to create professional CVs tailored to their dream jobs, with guidance on formatting, highlighting skills, and crafting compelling summaries. This activity directly addressed the importance of self-presentation in the job market. Yorke (2006) emphasizes that employability-focused education, including CV writing, significantly enhances young people's readiness for workforce integration.
8. **Interviews on Career Perspectives**
   Semi-structured interviews were conducted with participants from Hungary, exploring their career aspirations, reflections on the camp, and readiness for future employment. These interviews provided valuable insights into participants' evolving perceptions and allowed for personalized feedback. According to Knowles (1980), individualized attention in educational settings enhances engagement and reinforces learning outcomes.

Why This Strategy Works

The summer camp's strategy effectively combines experiential learning, collaborative activities, and targeted career education, making it a robust approach to preparing young people for the modern labor market.

1. **Experiential Learning as the Core**
   Activities such as creating CVs, delivering presentations, and designing dream jobs allowed participants to actively engage with the material. Kolb (1984) emphasizes that learning through direct experience fosters deeper understanding and retention, particularly in skill-based education.
2. **Critical Thinking and Decision-Making**
   Structured deliberations encouraged participants to critically analyze their career options, helping them develop the evaluative skills needed for informed decision-making. This aligns with Bloom's Taxonomy (Bloom, 1956), which highlights the importance of analysis and synthesis in cognitive development.
3. **Career Awareness and Motivation**
   The World Café and dream job activities exposed participants to a wide range of career possibilities, broadening their understanding of the labor market. CEDEFOP (2023) notes that early exposure to diverse career paths significantly enhances motivation and goal-setting behavior among teenagers.
4. **Collaboration and Social Inclusion**
   The camp fostered collaboration through group discussions and projects, helping participants build teamwork and communication skills. These soft skills are

increasingly valued by employers (Knight & Yorke, 2003) and are essential for fostering social inclusion.

5. **Digital Awareness and Reflection**
   The DOP session on digitalization not only developed participants' critical thinking about technology but also prepared them for the ethical and practical challenges of a digitalized world. Hargittai (2010) highlights the importance of integrating digital literacy into career preparation programs.
6. **Personalized Feedback and Growth**
   The interviews provided a platform for participants to reflect on their learning and career goals, reinforcing the skills and knowledge gained during the camp. Knowles (1980) emphasizes that personalized educational approaches enhance motivation and long-term engagement.

The summer camp's strategy represents a comprehensive educational approach that equips teenagers with both technical and soft skills necessary for success in the modern labor market. By integrating practical activities, critical reflection, and collaborative learning, the camp fosters career readiness, self-confidence, and adaptability. This approach aligns with established educational theories and research, demonstrating its effectiveness in preparing young people to navigate their futures with confidence and competence.

6.4. Our observations

The summer camp provided valuable insights into the participants' development in skills, confidence, and perspectives on career readiness. By engaging in activities such as presentation training, deliberative discussions, and CV creation, students from Hungary and Slovakia showcased both similarities and differences in their learning experiences and career aspirations. These observations shed light on how structured, experiential learning can influence young people's attitudes and preparedness for the job market.

Presentation Skills

Participants in both Hungary and Slovakia exhibited similar levels of ability in presentation skills. However, many struggled to follow a clear structure in their presentations. This observation highlights the importance of training in logical organization and effective communication, as these skills are critical for both academic and professional contexts. While the activity challenged participants, it also served as a foundation for building confidence in public speaking and articulating their thoughts.

Deliberative Discussions

The deliberative discussions revealed notable differences between the two groups. Participants from Hungary were more willing to express themselves in complex sentences and engage deeply with the topics, while participants from Slovakia tended to be more reserved. Across both groups, a common sentiment emerged: most participants preferred professions over university education or jobs without formal training. They appreciated the perceived balance professions offered between shorter training periods and quicker entry into the workforce, allowing for earlier financial independence. This reflects a pragmatic approach to career planning, influenced by their socioeconomic environments.

The World Café and Dream Job Development

The World Café sessions highlighted distinct preferences between the two groups. Among participants from Slovakia, there was a strong inclination toward traditional roles, with many expressing a desire to become kindergarten teachers. Few showed interest in IT careers or university education, indicating a limited awareness or appeal of these paths. In contrast, participants from Hungary demonstrated more openness to diverse opportunities, including IT-related roles and higher education.

Developing their dream jobs proved challenging for both groups. Only a few participants had a clear vision of their future careers, reflecting the broader need for career guidance and structured support to help young people explore and define their professional aspirations.

CV Creation and Interview Preparation

Creating a CV required participants to choose a specific job they wanted to apply for, which further clarified their career interests. Hungarian students found this exercise particularly engaging, as it allowed them to connect their aspirations with tangible steps in the job application process. During interviews, participants from Hungary were motivated, excited, and able to answer most questions confidently, showing that the activity resonated deeply with their immediate career goals. Meanwhile, participants from Slovakia did not engage in interviews during the camp, focusing instead on other activities. This difference underscores the varying relevance and impact of job market preparation activities depending on the participants' environments and perceived needs.

Interview

We only had the interviews with the participants from Hungary. Participants’ feedback provided valuable insights into the camp’s impact on their confidence and career readiness. Many noted that the presentation, CV creation, and structured interview exercises were instrumental in helping them feel more prepared to apply for jobs. They appreciated having a clear framework for interviews, which demystified the process and gave them practical tools to succeed.

Perceptions and Reflections

The reflections gathered from participants, particularly the group from Hungary, provide a compelling narrative of how the summer camp influenced their perspectives, self-confidence, and readiness to engage with the job market. These insights reveal the transformative impact of structured activities like presentations, CV creation, and interview preparation on their understanding of career development and self-efficacy.

Building Confidence and Clarity

A recurring theme in participants’ feedback was the realization that their ability to understand and execute tasks depended not on inherent talent but on the clarity and method of instruction. This shift in mindset helped dismantle preconceived notions of inadequacy. Many participants expressed that they felt less intimidated by new challenges, particularly in IT,

and were more open to learning new skills. This change in attitude is particularly significant in light of research by Kolb (1984), which emphasizes the importance of experiential learning in building confidence and fostering a willingness to engage with complex tasks.

The summer camp effectively built on these experiential methods by combining knowledge transfer with skill application. Structured activities like the CV writing exercise and mock interviews provided participants with practical knowledge, while the realistic settings allowed them to apply what they learned immediately. For example, participants from Hungary highlighted how valuable it was to practice interviews in a supportive environment. These sessions demystified the process of job applications, bridging theoretical learning and real-world skill application. By simulating the pressure and structure of a real interview, participants gained clarity on what to expect, how to present themselves, and how to navigate challenges. This preparation not only made the process feel achievable but also enhanced their confidence, fulfilling the camp's aim of combining knowledge transfer with actionable skill-building.

Learning to Set Realistic Goals

Another significant outcome was the shift in participants' approaches to setting goals. At the start of the program, many participants articulated vague or overly ambitious career aspirations. While these reflected their dreams, they often lacked a concrete understanding of the steps needed to achieve them. Through the camp's activities, including reflective discussions and interactive learning, participants began breaking larger goals into smaller, actionable steps.

For example, discussions during the World Café sessions helped participants explore various career paths, such as IT and professional roles, while learning about the foundational skills required for each. Those aspiring to high-level IT positions like software development were guided to focus on incremental milestones, such as mastering coding basics. This structured progression combined knowledge of career paths with skill-building, ensuring participants had a clear roadmap to success. Research by Knight and Yorke (2003) supports this approach, emphasizing how employability-focused education enhances students' ability to align long-term aspirations with practical short-term actions.

Increased Awareness of Career Possibilities

The camp's combination of knowledge and skills also broadened participants' awareness of career options, particularly in IT. Many participants began the program with limited understanding of the variety of roles available in the industry. Through activities like the World Café and reflective sessions, they explored diverse career paths, discovering how their newly acquired IT skills could align with professional opportunities.

This blend of knowledge transfer and practical application was instrumental in helping participants view IT careers as achievable and relevant. Breaking down technical concepts into manageable tasks and demonstrating their real-world applications shifted perceptions, especially for those who initially saw IT as overly complex. This awareness was key to helping participants make informed decisions about their career trajectories.

Empowerment Through Practical Skills

Participants overwhelmingly appreciated the camp's focus on practical skill-building, particularly the combination of CV writing, mock interviews, and reflective activities. These exercises exemplified the camp's goal of merging knowledge acquisition with actionable skills. For instance, creating CVs provided participants with tangible outputs, while mock interviews allowed them to practice presenting their qualifications confidently. Participants from Hungary especially valued the realistic settings of the interviews, which helped them build confidence and receive constructive feedback.

This hands-on approach effectively integrated theoretical knowledge of job market expectations with the practical skills needed to meet them. As Yorke (2006) highlights, employability-focused interventions significantly enhance young people's transition from education to the workforce. By combining skill-building with practical applications, the camp empowered participants to see themselves as capable and competitive in the job market.

Belief in Their Potential

The most transformative outcome was the participants' increased belief in their potential. By combining experiential learning with structured guidance, the camp helped participants shift from viewing their goals as distant or unattainable to understanding them as achievable through incremental effort. This approach underscores the importance of combining knowledge transfer, such as understanding career options and IT fundamentals, with skills application, like creating CVs and preparing for interviews.

Participants also recognized that these strategies could be applied beyond the camp, enhancing their readiness for future learning and professional opportunities. They expressed confidence in breaking down complex goals, applying a methodical approach, and leveraging the skills they gained. This belief in their potential reflects the core objectives of the summer camp: to provide practical tools, instill confidence, and help participants navigate the challenges of a competitive labor market.

Conclusion

The summer camp effectively combined practical skill-building with reflective learning, fostering significant growth in participants' confidence, clarity, and readiness for the job market. While differences between the groups from Hungary and Slovakia reflected their distinct contexts, the program universally emphasized the value of structured guidance and experiential learning. By the end of the camp, participants not only felt more prepared to pursue their career goals but also developed a greater belief in their ability to learn, adapt, and succeed in the professional world.

The reflections from participants reveal the profound impact of the summer camp's activities on their confidence, clarity, and readiness for the job market. By providing a supportive environment for skill-building and reflection, the camp not only equipped participants with practical tools but also empowered them to believe in their ability to achieve their goals. This transformation underscores the importance of experiential, employability-focused education in shaping the futures of young people, particularly those navigating the challenges of a rapidly changing labor market.

7. Soft skills and group dynamics

Soft skills and group dynamics are fundamental components of personal and professional success, particularly in an interconnected and rapidly evolving digital world. Recognizing their significance, the INFO-PRO project integrated these elements throughout its year-long IT curriculum and summer camp activities. While the primary focus of the program was on equipping participants with technical IT skills, equal importance was given to fostering the interpersonal and collaborative abilities necessary for effective teamwork, problem-solving, and adaptability in the modern labor market.

The year-long IT curriculum provided opportunities to develop soft skills through interactive group projects and problem-solving tasks. Activities such as collaborative coding challenges, designing IT-based projects, and reflective discussions allowed participants to practice communication, critical thinking, and decision-making in a supportive learning environment. This experiential approach ensured that technical learning was not conducted in isolation but was closely tied to interpersonal growth and group dynamics.

The summer camp curriculum further expanded on these principles, placing a stronger emphasis on deliberate soft skill development. Through activities such as mock interviews, deliberative discussions about career paths, and the World Café sessions, participants engaged in meaningful dialogue and collaborative problem-solving. These activities required them to articulate their thoughts clearly, listen actively, and work effectively with peers, mirroring the social and professional contexts they may encounter in the future.

Moreover, the camp served as a unique setting to observe and enhance group dynamics. Participants, many of whom came from diverse backgrounds with varying levels of confidence and exposure, were encouraged to engage in teamwork and mutual support. The facilitators and educators observed how participants navigated group tasks, resolved conflicts, and adapted to challenges, providing valuable insights into their interpersonal growth over the course of the program.

This chapter aims to explore the development of soft skills and group dynamics among participants, assessing how the INFO-PRO program fostered these competencies. By analyzing observational data, survey results, and reflections gathered throughout the year and during the summer camp, this section will evaluate the program’s impact on participants’ abilities to communicate, collaborate, and thrive within a group setting. These findings are essential for understanding how integrating soft skills with technical training can create well-rounded, job-ready individuals, especially among disadvantaged youth navigating systemic barriers.

7.1. Hungary

The evolution of group dynamics in the cohort of participants from Hungary of the INFO-PRO project was a gradual but transformative process, marked by both challenges and successes. Through structured activities and deliberate interventions, the group developed from a loosely connected set of individuals into a cohesive, supportive community. Trust

emerged as a key driver of this transformation, enabling participants to navigate conflicts, collaborate effectively, and develop essential soft skills.

Group Dynamics: Building Trust and Cohesion

At the beginning of the program, the group faced several challenges typical of the forming stage of group dynamics. Initial reluctance to engage fully, a few early dropouts, and misunderstandings made it difficult for the remaining participants to commit to the process. The dropouts also left some members questioning the stability of the group, which added to the initial hesitations. Early icebreaker games and trust-building activities, though helpful, required time to foster a sense of belonging among participants.

As the group continued to interact, moments of collective decision-making and mutual support became turning points. The first significant turning point was, as a participant broke our conduct, causing discomfort among others who no longer felt safe within the group anymore. However, after a facilitated discussion, the group collectively and everyone individually decided to forgive the individual, offering a second chance. This moment was pivotal in establishing a culture of support and accountability, with participants rallying around their peer to ensure they succeeded moving forward.

Similarly, another participant faced peer pressure to report a personal mistake—smoking in a restricted area. Initially reluctant due to distrust from their home environment, the individual eventually felt safe enough to admit their actions, supported by peers who encouraged honesty without resorting to punitive measures. These situations exemplified the group's growing capacity to handle challenges constructively, demonstrating a shift toward mutual trust and responsibility.

A significant moment occurred when one participant, often seen as an outsider, was absent for a session. Facilitators used this opportunity to discuss with the group how it might feel to be excluded. This reflective conversation led to a notable shift in behavior: upon the participant's return, the group actively worked to include them more, demonstrating increased empathy and a commitment to creating an inclusive environment.

The group's growing cohesion also extended to self-regulation and collaborative activities. For example, when a minor disruption occurred—such as a participant discarding a banana peel out of a window—the group collectively discouraged the behavior without escalating the situation, emphasizing that such actions didn't align with their shared values. Their ability to handle such incidents internally reflected a deepening sense of group responsibility.

The development of group identity was further strengthened during creative and collaborative tasks. According to participant feedback, one of their favorite activities was painting the backside of the cards used in their game. This activity required teamwork and allowed them to express themselves collectively, fostering a sense of pride and shared accomplishment.

Soft Skills Development Through Group Dynamics

The evolving group dynamic provided fertile ground for the development of critical soft skills, such as communication, empathy, problem-solving, and feedback. Importantly, many of the

meaningful conversations that contributed to this development occurred outside the scheduled teaching sessions, reflecting the organic growth of trust and interpersonal relationships.

1. **Communication Skills:** Participants initially struggled with public speaking and articulating their thoughts clearly. Early activities, such as passing a ball during discussions to ensure everyone had a chance to speak, helped establish equal participation. Over time, these habits became ingrained, and participants confidently expressed their opinions without external prompts. Activities like presenting solutions at the board or explaining strategies during the card game further refined their ability to communicate ideas effectively.
2. **Empathy and Support:** Empathy was a key area of growth, as participants increasingly demonstrated care and understanding for one another. Discussions about inclusion, such as the conversation about how an outsider might feel, provided opportunities to practice perspective-taking. These reflective moments had tangible outcomes, such as increased efforts to include isolated members in activities and discussions.
3. **Problem-Solving and Collaboration:** Collaborative tasks, such as painting the backside of the cards, encouraged participants to work together creatively. This activity not only fostered teamwork but also allowed participants to experience the satisfaction of achieving something tangible as a group. Other tasks, like the storytelling aspects of the card game, required participants to build on one another's ideas, further enhancing their ability to collaborate effectively.
4. **Feedback Culture:** Feedback became an integral part of the group dynamic as participants grew comfortable offering and receiving constructive criticism. They provided feedback not only to peers but also to facilitators, openly sharing what they appreciated about the program and what could be improved. This willingness to engage in reflective dialogue demonstrated their confidence and growing interpersonal skills.
5. **Trust and Seeking Support:** As trust deepened, participants increasingly sought support from facilitators, sharing personal challenges and seeking advice on topics beyond the scope of the program. These included school-related issues, family matters, and even inquiries about legal work opportunities. This growing trust highlighted the importance of creating a safe and supportive environment for fostering both group cohesion and individual growth.

Conclusion

The progress in group dynamics and soft skills among the participants from Hungary highlights the transformative power of a supportive and structured learning environment. Despite initial challenges, such as dropouts and hesitations, the group developed into a cohesive unit capable of navigating conflicts, collaborating effectively, and supporting one another. Trust was the cornerstone of this transformation, enabling participants to take risks, admit mistakes, and work toward solutions collectively.

Through experiential learning, creative tasks, and reflective discussions—both structured and organic—participants developed critical soft skills that will serve them in personal and professional contexts. The journey from initial reluctance to active engagement underscores

the value of integrating soft skill development into educational programs, particularly for disadvantaged youth. These skills, coupled with the trust and collaboration fostered throughout the program, laid a strong foundation for the participants' future success.

7.2. Slovakia

The group in Slovakia had different group dynamics than the group in Hungary. Every student in this group had known each other before the project, because they were studying in the same school. However, in many cases this acquaintance was shallow or, at times, there was outright prejudice against each other. As there were a mixture of Roma and non-Roma pupils in the group, it was also a challenge to bridge the gap between the two ethnic groups during the project.

Group Dynamics: Building Trust and Cohesion

As there were several pupils per class, they were initially observed to move around in these smaller groups during the sessions, which provided a sense of security. During the experiential education sessions, the facilitators tried to get the children to open up to each other, to really get to know each other and to approach each other through various team-building exercises.

At the beginning of the project, it was very frustrating for the lower-achieving students to be faced with the fact that they would not be able to cope with programming, as they had great difficulty in following the pace of the sessions, had deficiencies in using the computer and had problems writing on the computer itself, so they could not type the exact commands to be entered in the programming. As a result, they felt uncomfortable in front of others and, rather than feeling a stronger sense of belonging to the group, they felt more like outsiders who were holding the group back. They had no sense of achievement, they lost motivation, and they did not want to continue with the project. This also affected the experiential education sessions, as they did not feel comfortable within the group, they felt ashamed in front of others.

After discussion with the facilitators, it was decided that these children needed to be given a boost in confidence and a sense of belonging to the group, as they needed this because of their disadvantaged situation. So we decided to allow them to attend only the experiential education sessions, otherwise they would have dropped out of the group completely. Only after this difficulty was resolved did the group start to develop. The children then became liberated, as there was no tension in them about having to do something that doomed them to failure.

It took several sessions before they started to step out of their comfort zone and started to communicate with each other. At first they only had a few words to say, but over the year they have learned to express their opinions. By following the rules of the group, they have learned that the other members of the group and the facilitators accept them even if they have a

different opinion than the others or if they don't like something. They have also learned that they can do much more in a team than they can do alone. The group was constantly changing and building, they learned to cooperate, to listen to each other, to know their limits.

Most importantly, the trip to Kokava helped to build relationships, both within the Slovak group and between the Slovak-Hungarian groups. This occasion made the fact that the project is taking place in Budapest as well as in Tornalja a reality for the groups. Some of the children decided after the Kokava trip that they would definitely like to participate in the Vienna camp, as they had made friends with the Budapest group. This was a great motivation to actively participate in the sessions for the rest of the school year.

Soft Skills Development

1. **Communication and feedback:** At the beginning of the project, participants were reluctant to go public in front of others. Since public education is still dominated by frontal teaching, students are not used to expressing their opinions. The facilitators used different experiential pedagogical methods to get the group members to gradually open up and get used to saying what they think, because there is no wrong answer in the group, and they tolerate differences of opinion, they learned to give feedback on the activities, on the behaviour of the other participants.

2. **Empathy and Support:** The different problems encountered in the group led the participants to be empathetic towards each other. During the sessions they learned to respect, accept and support each other. Sometimes children in difficult situations needed support, which they could get from the group members. One of the participants was suffering from severe depression, but the group members tolerated his mood, tried to listen to him during the excursions and the camp, and supported and talked to him, even if it was often difficult.

3. **Problem-solving and collaboration:** The facilitators constantly tried to choose tasks for the group members that were challenging because they required problem solving and cooperation. In this way, their problem-solving skills were developed and cooperation within the group was significantly enhanced. These tasks have gradually achieved that by the end of the year all members of the group were communicating with each other while working together to try to achieve the goals set.
   In our group, at the beginning of the project, Roma and non-Roma students did not want to cooperate because they had reservations about each other. This also determined the group dynamics at the beginning. However, the common tasks and getting to know each other eliminated the reservations in the children, so that by the end of the project the group members were able to work together.

Conclusion

Disadvantaged learners need to develop their communication skills, cooperation, self-confidence and other soft skills in order to be able to set themselves goals. As their environment and family background do not ensure that these skills are developed at home,

schools should also prepare pupils with the skills they need for life. The extracurricular project activities provided pupils with tasks that strengthened these skills.

The Slovakian group started the project at a greater disadvantage compared to the children in Budapest, as they were not only socially disadvantaged, but also lived in one of the poorest regions of the country, in a small town or villages. The world of programming was very remote for them. Although the objective was for both groups to progress in the same way and achieve the same results, it was clear from the beginning of the project that this would not be feasible. Experience shows that the experiential education sessions had a greater impact on the Slovakian group, as they needed to strengthen their skills first in order to develop their subject knowledge, which could lead to changes in their further education and their choice of profession.

8. Conclusion and outlook

The INFO-PRO project was an ambitious initiative aimed at equipping disadvantaged youth in Hungary and Slovakia with essential IT, soft skills, and career competencies to enhance their future employability and social inclusion. By combining a year-long IT curriculum with a culminating summer camp focused on job skills and personal development, the program sought to bridge the gap between technical knowledge and practical career readiness. The project addressed systemic barriers faced by participants, particularly those from rural or marginalized communities, while fostering a sense of agency and confidence in their abilities.

The INFO-PRO project focused on two key areas: technical IT training and the development of soft skills necessary for personal and professional growth. Over the course of the school year, participants engaged in experiential learning activities, including programming exercises, problem-solving tasks, and interactive group discussions. These activities were designed not only to enhance technical proficiency but also to encourage collaboration, critical thinking, and effective communication.

The summer camp served as an extension of this foundation, emphasizing job market preparation through activities like CV writing, mock interviews, and reflective discussions. By combining knowledge transfer with practical application, the program aimed to prepare participants to navigate the complexities of the modern labor market, while also fostering a greater sense of self-efficacy and direction.

8.1. Impact and Outcomes

Technical Skills Development

Result: The hypothesis is supported with nuances
The surveys and the deliberative opinion poll (DOP), especially after viewing *The Circle*, revealed a more nuanced understanding of digitalization among participants. While participants recognized the benefits of digital tools, they also became more aware of risks, particularly regarding data privacy. This shift aligns with the hypothesis that the project would foster a balanced attitude toward digitalization. However, the increased awareness of risks slightly tempered their enthusiasm, suggesting a cautious but informed perspective rather than an unreservedly positive one.

The IT curriculum successfully introduced participants to foundational programming concepts, such as coding basics, logical structures, and data management. Through hands-on activities and collaborative projects, participants gained confidence in their technical abilities. Observations revealed that while many participants initially viewed IT as inaccessible, the structured and supportive teaching methods helped demystify these skills, fostering a sense of achievement and capability. For instance, activities like designing and coding card games not only enhanced technical understanding but also encouraged creativity and teamwork.

Career Aspirations and Self-Confidence

Result: The hypothesis is partially supported
The project enhanced participants' awareness of the labor market and helped articulate clearer career goals by the program's midpoint. However, while participants from Hungary showed greater readiness for job applications due to their urban context and consistent mentorship, participants from Slovakia, particularly those from rural areas, faced systemic barriers that limited their progress. This divergence indicates that while the hypothesis is supported for some participants, additional support and tailored interventions are needed for others to achieve similar outcomes.

The INFO-PRO project had a measurable impact on participants' career aspirations and self-confidence, with notable differences influenced by their local contexts. Throughout the year, surveys and observations revealed initial uncertainty about future career paths, particularly among participants from Slovakia from rural areas. The experiential learning approach and structured activities helped participants articulate clearer and more realistic goals over time, though challenges remained.

Participants from Hungary, living in the urban environment of Budapest, benefited from greater access to career resources, diverse role models, and professional exposure. This environment contributed to their higher initial confidence levels and sustained engagement with the program. They were more familiar with structured career-related activities, which allowed them to respond more positively to exercises like CV writing and mock interviews. The urban setting offered opportunities for participants to connect their newly acquired IT skills with tangible career paths, reinforcing their sense of preparedness.

In contrast, participants from Slovakia from rural areas faced systemic barriers, such as limited access to educational and career-oriented resources, which were reflected in their lower confidence and clarity about career goals. Their initial uncertainty stemmed from a lack of exposure to diverse job opportunities and guidance on how to navigate the labor market. Despite these challenges, the program's interventions gradually helped them gain a broader understanding of career possibilities, although their confidence remained more fragile compared to their peers from Hungary.

During the summer camp, activities like job market preparation and reflective discussions played a crucial role in bridging these gaps. Participants from Hungary highlighted the value of mock interviews, which provided a realistic yet supportive environment to practice their skills and build confidence. These exercises demystified the job application process, equipping them with the tools and self-assurance to approach real-world opportunities. For participants from Slovakia, the camp served as a vital extension to the school-year program, offering them insights into career planning that they might not have otherwise encountered.

By the end of the program, both groups demonstrated an increased belief in their potential and a clearer understanding of the steps required to achieve their career aspirations. However, the disparities between rural and urban contexts underscored the importance of tailoring interventions to address the unique challenges faced by disadvantaged youth in different settings. These findings highlight the transformative potential of combining technical training with practical career guidance while emphasizing the need for sustained support to ensure long-term success.

Soft Skills and Group Dynamics

Result: The hypothesis is supported
Observations and feedback from facilitators confirmed significant improvements in group dynamics and social inclusion. Participants built trust, collaborated effectively, and supported one another, as evidenced by activities like the card game development and discussions addressing interpersonal challenges. These findings affirm the hypothesis that structured, collaborative activities foster teamwork and social integration, particularly among disadvantaged and diverse groups.

One of the most transformative aspects of the project was the development of soft skills and group dynamics. Over the year, participants evolved from hesitant individuals to collaborative team members capable of navigating conflicts, offering constructive feedback, and supporting one another. Trust emerged as a critical factor, cultivated through deliberate activities and consistent facilitation. Participants demonstrated significant growth in communication, empathy, and self-regulation, with these skills further refined during the summer camp.

Key observations included:

- **Trust and Inclusion:** Participants increasingly trusted facilitators and peers, enabling open discussions about personal challenges and collaborative problem-solving.
- **Feedback Culture:** A strong feedback culture developed, with participants confidently expressing their opinions and offering constructive suggestions.
- **Conflict Resolution:** The group handled challenges such as rule-breaking or teasing constructively, demonstrating a commitment to shared values and mutual respect.

Overall Impact on Digital and Soft Skills Development

Result: The hypothesis is supported
The program led to measurable improvements in digital and soft skills. Participants gained foundational programming knowledge and developed problem-solving and teamwork abilities through project-based activities, particularly the card game development. Surveys and observational data confirmed that participants left the program with enhanced digital literacy and interpersonal skills, validating the hypothesis. However, the varying levels of progress between participants from Hungary and Slovakia highlight the need for context-sensitive adaptations in future implementations.

Overall, the INFO-PRO project successfully addressed its key objectives, with varying degrees of success across different participant groups. While all hypotheses were supported to some extent, differences in local contexts and systemic challenges underline the importance of tailored strategies for maximum impact. The findings emphasize the transformative potential of integrating digital literacy with soft skills and employability training, providing valuable insights for future programs aiming to empower disadvantaged youth.

8.2. Lessons learned

The Need for More Frequent Cross-National Meetings

One key lesson learned from the INFO-PRO project is the importance of creating opportunities for frequent interactions between participants from the two countries. While the program achieved significant growth in group dynamics and skill development within each country, the formation of a unified, cohesive team across the participants from Hungary and Slovakia was less pronounced. Limited opportunities for cross-national engagement hindered the potential for building mutual understanding, collaboration, and a shared group identity.

Research on cross-cultural group dynamics underscores the importance of frequent and meaningful interactions in fostering cohesion among diverse teams (Gudykunst, 2005). Regular contact helps participants develop familiarity and empathy, reducing biases and promoting a sense of shared purpose. In the context of the INFO-PRO project, more frequent joint meetings could have provided opportunities for participants to collaborate on shared tasks, engage in reflective discussions, and establish trust across national lines. This approach aligns with findings by Pettigrew (1998), who noted that intergroup contact, when structured and repeated, can significantly improve relationships and reduce barriers between diverse groups.

Additionally, regular joint activities would have allowed participants to practice their soft skills, such as communication and teamwork, in a multicultural setting, better preparing them for the globalized workforce. Activities like collaborative problem-solving or co-developing project outputs could have served as a practical framework for building a unified team while reinforcing the program’s broader objectives.

The Importance of Consistency in Facilitation

Another critical lesson learned was the need for consistency in the facilitators and staff working with the participants. The INFO-PRO project involved different teams overseeing various aspects of the program, including IT training, soft skills development, and summer camp activities. While this division of responsibilities allowed for specialized expertise, it also introduced challenges in communication and information transfer. Participants sometimes experienced inconsistent guidance, which could lead to confusion and missed opportunities for addressing individual needs effectively.

Studies on youth development programs highlight the value of consistent mentorship in building trust and fostering engagement. Rhodes et al. (2006) found that sustained, meaningful relationships with mentors are a key predictor of positive outcomes in youth programs. Frequent changes in personnel or fragmented oversight can disrupt the trust-building process and diminish the sense of security participants feel. In the INFO-PRO project, a single, consistent team overseeing participants across all phases of the program would have facilitated better communication, streamlined information transfer, and provided participants with familiar, trusted figures to guide their journey.

This consistency is particularly important for disadvantaged youth, who may already face challenges in forming trusting relationships due to past experiences of instability or lack of support. By maintaining a stable team, the program could ensure that facilitators have a deep understanding of each participant’s progress, needs, and challenges, enabling more personalized and effective support.

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Appendix

Survey

What digital devices do you usually use?
Do you use the internet?
How often do you use a laptop/computer?
How often do you use a smartphone?
How often do you watch series/movies?
What is your opinion about the fact that more and more things are becoming digital?
What do you think the internet is?
What does digitalization mean to you?
Do you think digital devices and the internet help in learning new things?
How comfortable do you feel using digital technology for schoolwork or homework?
Do you think it is important for kids your age to learn about digital technology and how it works?
Do you think digital technology makes it easier to connect with friends and family?
Do you prefer digital connections or in-person meetings?
What do you think are the benefits of using digital technology for learning and entertainment?
Do you have any concerns or dislikes about using digital devices or the internet?
How often do you exercise?
How much time do you spend in nature? (walking, hiking, outdoor sports, playing with friends)
What do you usually do in your free time?
How often do you communicate with your friends via text messages?
How often do you communicate with your friends on Messenger/Instagram/TikTok?
How often do you meet your friends in person?
How do you spend time with your friends when you meet in person?
What does the word “informatics” mean to you?
What do you think informatics is good for?
What digital skills do you think a person can have? (multiple answers possible)
Do you know any famous IT professionals? If yes, who comes to mind?
What does an IT professional do?
How easy do you find it to start a program on a computer/laptop?
How easy do you find it to reinstall the operating system on your phone?
How easy do you find it to install a program (software) on a laptop?
How easy do you find it to come up with an idea for an online game?
How easy do you find it to program an online game?
How easy do you find it to understand a math problem?
How easy do you find it to solve a math problem?
How close do you feel to mathematics?
What proportion of jobs do you think require IT knowledge?
What proportion of jobs do you think require foreign language skills?
What proportion of jobs do you think require communication skills?
How much do you think a person’s hobbies affect their salary?
How much do you think a person’s education affects their salary?

How much do you think a person’s communication skills affect their salary?
How much do you think a person’s empathy affects their salary?
How much do you think a person’s number of spoken languages affects their salary?
How much do you think having basic IT knowledge affects a person’s salary?
How much do you think knowing programming affects a person’s salary?
What kind of job would you like to do in the future?
What knowledge or skills do you think you’ll need to do that job?
What knowledge or skills do you think you need to improve to get your dream job?
What else would you like to learn or practice?
How important do you think empathy will be for your ideal job?
How important do you think good communication skills will be for your ideal job?
How important do you think a high level of education will be for your ideal job?
How important do you think language skills will be for your ideal job?
How important do you think IT knowledge will be for your ideal job?
If needed, what type of IT knowledge do you think will be important for that job?
How confident do you feel about applying for your dream job right now?
How confident do you feel that, based on your current skills and experience, you would be hired for your dream job?
How confident do you feel about writing your CV right now?
How confident do you feel about convincing an employer of your suitability in an interview?
What other areas of work interest you?
If applicable, what are the advantages/disadvantages of this alternative job compared to your dream job?

Job interview questions

Tell us about yourself!
Why did you apply for this position?
We’ll also share some details about the position.
What professional experience do you have?
How do you handle stressful situations?
What are your strengths and weaknesses?
How do you see yourself in five years?
How do you usually resolve conflicts?
What would motivate you in this job?
What type of work environment would you feel most comfortable in?

Can we switch to English for a few minutes? → Tell me something about your hobby.

Do you have any questions about the position or the company?

Interview questions

Question Design

- **Open-Ended Questions**: These allow participants to elaborate on their experiences, providing rich qualitative data.
- **Specific Examples**: Asking for concrete examples ensures responses are grounded in participants' actual experiences.
- **Focus on Reflection**: Encouraging participants to reflect on changes in their attitudes, skills, and perceptions helps assess the program's impact more effectively.

These questions ensure that interviews generate meaningful insights aligned with the INFO-PRO project's objectives and research goals.

1. Attitudes Toward Digitalization

- How do you feel about the role of technology and digital tools in your daily life?
- Can you describe how your perspective on digitalization has changed after participating in the project?
- What do you see as the biggest opportunities and risks of digitalization?

2. Engagement with Training Content

- Which part of the program did you find the most interesting or enjoyable, and why?
- Can you describe a specific activity (e.g., programming, group tasks) where you felt particularly engaged or learned something valuable?
- Were there any challenges you faced while learning the technical skills, and how did you overcome them?
- How would you describe your confidence in using the digital skills you've learned in real-world scenarios?

3. Group Dynamics and Social Inclusion

- How did working in groups during the program influence your ability to communicate and collaborate with others?
- Can you share an example of how you or your group resolved a conflict or overcame a challenge together?
- Did you feel included and supported by your peers and group leaders during the program? Why or why not?
- How has participating in group activities changed your perspective on teamwork?

4. Perception of the Labor Market

- What are your career aspirations, and how has the program influenced your goals?
- How prepared do you feel to pursue a job in the digital or IT field after participating in this program?
- What skills or knowledge gained from the program do you think will be most useful in the job market?
- What additional skills or knowledge do you feel you need to improve to achieve your career goals?

General and Wrap-Up Questions

- What was the most valuable thing you learned during the program?
- If you could change or improve one part of the program, what would it be?
- How do you think this program has helped prepare you for your future, both personally and professionally?
- Do you have any additional thoughts or feedback about your experience in the program?