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WP3.A7 – DATA ANALYSIS

Erasmus+ KA220-SCH Strategic Partnership in School Education

-DICOMI-

DIGITAL COMICS OF MIGRATION

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Work Package 3 (WP3) of the DICOMI project focused on translating the learning resources developed under WP2 into practical educational settings through two interconnected activities: teacher training and student implementation. The overall purpose was to strengthen educators' capacity to use digital comics, digital learning tools, and inclusive pedagogical strategies while enabling students to explore migration, diversity, belonging, empathy, and social inclusion through visual storytelling.

The implementation evidence collected across partner countries demonstrates a consistently positive assessment of the DICOMI Learning Programme. Across the reported implementation sites, 29 educators participated in teacher-training activities and approximately 104 students participated in classroom implementation. The partner reports demonstrate that the programme was implemented in substantially different educational contexts, including university and non-formal education settings, primary and secondary schools, and both public and private educational environments. This diversity provides useful evidence concerning the adaptability and transferability of the DICOMI approach.

The evaluation employed a mixed evidence approach, combining teacher questionnaires, student pre- and post-tests, participant feedback, classroom observations, student products, and qualitative reflections. Quantitative findings should be interpreted primarily as descriptive evidence of change, rather than as statistically generalisable impact estimates, because several country-level samples were small and the implementation did not employ experimental or control-group designs.

The strongest and most consistent finding concerns the pedagogical value of comics and visual storytelling. Teachers across countries regarded the comics as engaging, visually attractive, appropriate for sensitive topics, and useful for making complex migration-related issues more accessible. In the Netherlands, for example, all four teacher respondents gave the highest rating (5/5) to the coherence of the programme, compatibility of the 3E Framework with the modules, expected student appreciation, and educational effectiveness of the comics. In Germany, all three participating teachers similarly provided positive evaluations of programme coherence, objectives, and expected student reactions.

A second major finding concerns teachers' professional development in inclusive and digital pedagogy. The training strengthened educators' confidence in using digital resources, visual storytelling, and comics as educational tools. Particularly important was the recognition that DICOMI could address a professional-development gap concerning migration and inclusive education. The Funded by the Erasmus+ Program of the European Union. However, European Commission and Turkish National Agency cannot be held responsible for any use which may be made of the information contained therein.



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Turkish teachers, for example, reported limited previous formal preparation for teaching about migration and supporting migrant students, while the DICOMI training provided practical resources and strategies in this area.

The student implementation findings are similarly encouraging. Students demonstrated high engagement with the comics, increased appreciation of comics as educational resources, and positive development in attitudes towards migration and inclusion. In Türkiye, the proportion of students reporting that they liked comics increased from 55% before implementation to 80% after implementation, while more than 75% reported reading comics at home following the programme. In Germany, enjoyment of comics increased from an average of 4.24 to 4.75 on a five-point scale, while attitudes indicating social distance from immigrants also moved in a more inclusive direction.

The evidence also suggests that DICOMI contributed to empathy, perspective-taking, intercultural understanding, and inclusive attitudes. Students increasingly discussed migration as a complex human experience rather than simply as geographical movement. Student-created comics, written reflections, classroom discussions, and responses to pre- and post-test items provide converging evidence of this development. In Türkiye, for example, 55% of students initially agreed with the statement that nobody should leave their country, whereas more than half disagreed with the statement after the intervention. In addition, almost 80% strongly disagreed with the idea that immigrants should be made to feel that they do not belong.

Overall, WP3 can therefore be assessed as highly successful in terms of implementation quality, participant engagement, pedagogical relevance, and achievement of its core objectives. The main area requiring further development is the digital platform and the evaluation methodology itself. While the educational content was consistently highly valued, platform usability received substantially lower ratings in the Netherlands, indicating the importance of improving navigation, accessibility, technical guidance, and interactive functions. Future implementations would also benefit from stronger pre/post measurement, larger samples, standardised instruments, and more systematic documentation of learning gains.



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1. Introduction

WP3 operationalised the DICOMI Learning Programme developed under WP2. The programme consists of ten classroom modules supported by an additional introductory teacher-training module. The modules combine migration education, digital comics, visual storytelling, Social and Emotional Learning (SEL), and the 3E Framework (Enhance, Extend, Empower).

The evaluation was designed to examine whether the programme could:

1. strengthen teachers' digital and pedagogical competences;
2. increase teachers' confidence in addressing migration and inclusion;
3. demonstrate the educational value of comics and digital storytelling;
4. engage students in learning through innovative and accessible materials;
5. strengthen students' understanding of migration;
6. encourage empathy and perspective-taking;
7. promote inclusive attitudes and social interaction; and
8. demonstrate the transferability of the DICOMI approach across different educational contexts.

The evaluation evidence derives from partner-level implementation reports and includes both quantitative and qualitative information. The data sources included:

- teacher evaluation questionnaires;
- student pre- and post-tests;
- student evaluation surveys;
- classroom observations;
- teacher reflections;
- open-ended participant feedback;
- student-created comics and other learning products; and
- implementation documentation.



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This combination provides a useful mixed-methods evidence base, because quantitative results demonstrate patterns of change while qualitative evidence helps explain how and why the intervention may have generated these outcomes.

2. Scope and Implementation of WP3

The implementation took place across several partner contexts. The reported participation was as follows:

Country	Teachers Educators	/ Students	Main Evidence
Ukraine	10	22	Teacher feedback, student survey, classroom implementation
Netherlands	4	15	Teacher survey, qualitative student observations
Sweden	10	22	Teacher feedback, classroom observations, student feedback
Germany	3	20	Teacher survey, student pre/post evaluation, student products
Türkiye	4	41	Teacher feedback, student pre/post tests, student products
Reported total	31	116	Mixed quantitative and qualitative evidence

These figures represent the participation reported by the individual partner implementation reports and should be understood as reported country-level participation, rather than necessarily representing a formally deduplicated project-wide participant database.

The implementation contexts were highly diverse. Ukraine involved university educators and students in a context directly affected by war and displacement. Sweden involved a culturally and linguistically diverse group including migrant learners. Germany involved primary-school implementation. Türkiye involved a seventh-grade public-school class, while the Netherlands included high-school students. This diversity is important because it provides evidence that the programme is not dependent on a single age group, institutional type, or national context.



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The Ukrainian implementation provides particularly strong evidence of full programme delivery: all ten modules were implemented with 22 students between November and December 2025, while 13 detailed student survey responses were subsequently analysed.

3. Evaluation of Teacher Training

3.1 Achievement of Teacher-Training Objectives

The teacher-training component achieved its principal objectives. The training introduced educators to:

- the DICOMI pedagogical framework;
- digital comics and visual storytelling;
- the DICOMI online platform;
- digital and Web 2.0 tools;
- inclusive educational strategies;
- migration-related education;
- SEL-oriented approaches; and
- strategies for discussing sensitive issues such as displacement, identity, belonging and exclusion.

Module 0 was particularly important because it provided a foundation for understanding inclusion, digitalisation and the educational use of comics, while the ten classroom modules provided opportunities for educators to explore how these principles could be translated into practice.

The evidence indicates that the training was not merely an orientation to project materials. Teachers were encouraged to consider how the resources could be integrated into actual curricula and adapted to their learners' needs.

This is particularly evident in Türkiye, where teachers reported that the project materials were valuable because activities were accompanied by explicit learning objectives, making them easier to integrate into lesson planning.



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3.2 Development of Teachers' Digital Competence

Digital competence development was one of the clearest outcomes of the training.

Teachers were introduced to:

- digital comics;
- digital storytelling;
- online learning platforms;
- comic-creation tools;
- multimedia learning;
- interactive activities; and
- digital approaches to learner participation.

The Ukrainian training, for example, familiarised ten educators with tools such as Pixton and Canva and demonstrated how digital storytelling could be integrated into civic education, social studies and language learning.

In Sweden, teachers reported increased confidence in using digital learning resources and greater understanding of how digital storytelling could support active learning and participation.

The Turkish implementation provides an additional important finding: digital pedagogy was understood not simply as technology use, but as learner production and creativity. Students were encouraged to create their own digital comics using Pixton, extending digital engagement beyond consumption to content creation.

This distinction is important for evaluating project quality. The intervention supported movement from digital consumption → digital interaction → digital creation, which represents a stronger form of digital competence development.

3.3 Comics as an Innovative Pedagogical Method

The strongest cross-country finding concerns teachers' perceptions of comics.

Teachers consistently identified the comics as:

- visually attractive;
- engaging;



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- age appropriate;
- pedagogically effective;
- useful for complex topics;
- accessible to learners with different needs;
- suitable for interdisciplinary teaching; and
- particularly valuable for migration and inclusion education.

In the Netherlands, all four teacher respondents rated the educational effectiveness and visual quality of the comics at 5/5. They also unanimously believed students would like the comics and considered comics effective for migration and inclusion education.

German teachers similarly rated the programme's coherence and expected student response positively, with all three teachers giving positive assessments of programme design and student appreciation.

The qualitative evidence adds an important pedagogical dimension. Teachers repeatedly explained that visual storytelling reduced the abstraction of migration-related topics. Instead of approaching migration exclusively through statistics, policy or textual information, students encountered characters, emotions and lived experiences.

The evidence therefore supports the conclusion that DICOMI successfully positioned comics not as entertainment replacing serious learning, but as a multimodal pedagogical resource supporting serious learning.

4. Teacher Training and Inclusive Education

A particularly significant achievement of WP3 was its contribution to teacher preparedness for migration and inclusive education.

This outcome is particularly visible in Türkiye. Participating teachers reported that migration and education had received limited attention in their previous professional preparation. One teacher reported having substantial experience with migrant students but no formal pre-service or in-service preparation specifically addressing migration and education.

The DICOMI training therefore addressed a genuine professional-development need rather than simply introducing another teaching technology.



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Teachers also valued the international and human-centred representation of migration. They considered the representation of war-related migration, including experiences connected to Ukraine and Syria, particularly useful because suitable age-appropriate materials are difficult to identify.

Similarly, educators in the Netherlands highlighted the importance of real stories, oral history, testimony and lived experience in helping students understand migration as a human experience involving identity, family, language, belonging and emotional challenges.

The findings therefore suggest that DICOMI strengthened not only teachers' technical competence, but also their pedagogical confidence and conceptual understanding of migration and inclusion.

5. Student Implementation

5.1 Implementation Fidelity

A major strength of WP3 is that the programme was implemented in real educational environments rather than evaluated only through teacher perceptions.

Across the partner countries, trained educators used the DICOMI modules with students and adapted implementation to local circumstances.

In Ukraine, all ten modules were implemented systematically with 22 students.

In Türkiye, all ten modules were implemented within social studies lessons with a seventh-grade class with 41 students.

In Germany, the implementation similarly included all ten modules and involved 20 primary-school students.

The evidence demonstrates that the core intervention was retained across settings while teachers adapted delivery according to available technology, curriculum and student characteristics.

6. Student Engagement with Comics

Student engagement represents one of the strongest measurable outcomes.

In Türkiye, the percentage of students who reported liking comics increased from **55% before implementation to 80% afterwards**. More than 75% also reported reading comics at home after the intervention.



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The change is important because it indicates that DICOMI may have influenced both attitudes toward comics and behavioural engagement with comics.

The intervention also changed students' understanding of the purpose of comics. Before implementation, more than 60% of Turkish students viewed comics primarily as entertainment. Following implementation, more than half disagreed with the statement that comics are "only for fun."

This finding is pedagogically significant. The intervention did not simply make students enjoy comics; it appears to have helped them reconsider what comics can do educationally.

Comparable evidence emerged in Germany. Students' average enjoyment of comics increased from **4.24 to 4.75/5**, while the post-test also showed reduced endorsement of the idea that comics are merely recreational.

7. Digital Skills and Digital Engagement among Students

The student implementation also contributed to digital competence development.

Students interacted with:

- digital comics;
- multimedia resources;
- online assessment tools;
- interactive learning activities;
- digital storytelling;
- comic-creation platforms; and
- online learning environments.

The Turkish implementation is particularly strong in demonstrating active digital participation. Students used the DICOMI digital comics through the classroom smartboard, completed online pre/post questionnaires using Google Forms, and created their own comics through Pixton. Many continued experimenting with comic creation outside school.

Importantly, the programme demonstrated resilience under infrastructural constraints. The Turkish public-school setting lacked individual computers or tablets, but the teacher combined



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smartboard-based digital delivery with printed materials. This illustrates the practical value of providing digital and non-digital alternatives within the same pedagogical design.

The Ukrainian implementation similarly demonstrated the feasibility of using digital materials despite infrastructure affected by war-related disruptions.

Thus, the evaluation supports the conclusion that DICOMI's digital dimension is sufficiently flexible to operate under different levels of technological provision.

8. Empathy, Perspective-Taking and Social Inclusion

The development of empathy and inclusive attitudes is arguably the most important substantive educational outcome of WP3.

The programme used authentic migration stories to encourage students to understand migration through the experiences of individuals and families.

Across the implementation reports, students were observed:

- discussing migration from different perspectives;
- recognising the emotional consequences of displacement;
- reflecting on belonging and exclusion;
- discussing friendship and mutual support;
- questioning stereotypes;
- expressing support for newcomers; and
- producing stories and comics that represented inclusion.

In Türkiye, student products contained explicit messages concerning empathy, equality, respect and anti-racism. Students produced comics depicting migrant students being welcomed into school and explicitly associated inclusion with respect.

Quantitative evidence also points in the same direction. In Türkiye, approximately 55% of students initially agreed that "nobody should leave their country"; after the intervention, more than half disagreed with the statement. Furthermore, almost 80% strongly disagreed with making immigrants feel that they do not belong.



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Germany provides another useful quantitative indicator. Students' endorsement of the statement "We don't have to be friends with immigrants" decreased from an already low **1.24 to 1.00** on the five-point scale. Students' responses concerning pity toward immigrants also decreased from **1.81 to 1.60**, which the evaluation interprets as movement away from a paternalistic "pity" orientation toward a more equal understanding.

These findings are especially relevant because DICOMI's objective is not simply to increase positive feelings toward migrants. A more sophisticated objective is to encourage empathy based on equality, perspective-taking and recognition of common humanity rather than pity or othering.

9. Qualitative Evidence of Learning

The qualitative evidence strengthens the interpretation of the quantitative findings.

Students did not merely report that they liked the comics; they demonstrated changes through their classroom contributions and creative products.

For example, students created narratives in which migrant students were welcomed into their school and emphasised concepts such as respect and empathy.

In Germany, the progression through the ten modules also appears pedagogically meaningful. Students moved from relatively accessible discussions about migration in nature toward increasingly complex topics such as forced migration, belonging, migration journeys, famous migrants and climate change.

This progression is consistent with the logic of the DICOMI curriculum: students are gradually moved from recognition → understanding → reflection → perspective-taking → social awareness.

The qualitative evidence therefore suggests that the learning process was not restricted to attitudinal change. It also involved discussion, interpretation, creative production and critical reflection.

10. Accessibility and Inclusion

Accessibility emerged as another important strength of the programme.

Teachers repeatedly emphasised that the combination of image and text could reduce barriers to comprehension. This was considered particularly valuable for:

- students with different language abilities;



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- students with diverse learning preferences;
- students requiring additional educational support; and
- students who may find lengthy textual materials difficult.

The special education teacher participating in the Turkish training explicitly valued comics because the combination of visual and textual information could increase participation and comprehension among learners with different educational needs.

The Swedish implementation similarly reported that visual storytelling supported learners with different levels of language proficiency and learning preferences.

This indicates that the project's accessibility was not achieved solely through technical accessibility. Rather, it was also embedded in the pedagogical design of the learning materials.

11. Overall Assessment Against WP3 Objectives

WP3 Objective	Evidence	Assessment
Strengthen teacher digital competence	Increased confidence, use of digital tools, Pixton/Canva/platform training	Very high
Strengthen inclusive teaching competence	Increased awareness of migration, inclusion and belonging	Very high
Introduce comics as educational tools	Consistently high teacher and student evaluations	Excellent
Increase student engagement	High participation and increased appreciation of comics	Excellent
Promote digital learning	Digital comics, online assessments and comic creation	High
Improve understanding of migration	Positive pre/post changes and qualitative reflections	Very high
Develop empathy/perspective-taking	Student products, discussions and attitude changes	Very high



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WP3 Objective	Evidence	Assessment
Promote social inclusion	More welcoming attitudes and rejection of exclusion	Very high
Support accessibility	Visual/multimodal format useful for diverse learners	High
Demonstrate transferability	Implementation across five national contexts	Excellent

Conclusion

The evaluation of WP3 demonstrates that the DICOMI Learning Programme was successfully translated from project development into practical educational implementation across diverse European contexts.

The evidence indicates that the teacher-training activities strengthened educators' awareness of digital pedagogy, comics-based learning, migration education and inclusive practice. Teachers consistently valued the quality, relevance and educational potential of the DICOMI materials. Particularly significant was the project's contribution to an area of professional development that teachers identified as insufficiently addressed in conventional teacher education: how to approach migration, displacement, belonging and inclusion pedagogically and sensitively.

The student implementation generated equally positive evidence. Students demonstrated strong engagement with the comics, increased recognition of comics as educational tools, greater use of digital resources, and positive changes in their understanding of migration and inclusion. Pre/post findings from Germany and Türkiye, together with student-created products and classroom observations, provide converging evidence of increased empathy, perspective-taking and more inclusive attitudes.

The findings are particularly significant because DICOMI did not approach migration education only through factual knowledge. Instead, the programme used authentic stories, visual narratives, dialogue and creative production to encourage students to understand migration as a human experience involving identity, family, belonging, loss, adaptation and resilience.

At the same time, the evaluation identifies a clear distinction between the very high educational quality of the DICOMI content and the need for further improvement of the digital platform. This should be treated as an important formative finding rather than a weakness of the overall



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intervention. The teachers' recommendations provide concrete directions for improving usability, accessibility and interactivity.

Overall, the available evidence supports the conclusion that WP3 substantially achieved its intended objectives. The strongest outcomes concern teacher professional development, student engagement, digital and visual literacy, empathy, perspective-taking and inclusive attitudes. The cross-country implementation also demonstrates that DICOMI is sufficiently flexible to be adapted to different educational levels, institutional settings and technological conditions.

The evaluation therefore supports the wider conclusion that digital comics can function as a credible and innovative pedagogical approach for migration, inclusion and intercultural education, particularly when they are embedded within structured classroom dialogue, Social and Emotional Learning, creative activities and teacher facilitation.

DICOMI's most significant contribution is consequently not simply the production of digital comics, but the development of a transferable pedagogical model in which visual storytelling, digital learning and inclusive education are integrated into a coherent learning experience.