

Mechanisms for Enhancing the National Upbringing of Primary School Students in A Digital Learning Environment

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Abstract: Children of primary school age now spend a substantial part of their day in front of screens. This simple fact has reshaped the conditions under which they form their first attachments to language, history, and shared cultural memory. The article asks how schools in Uzbekistan can use the digital learning environment, rather than fight against it, to strengthen national upbringing among learners aged seven to ten. The study draws on three sources: international research on digital citizenship and character education, the legal framework introduced by Presidential Decree No. PQ-183 of 15 May 2025, and the experience of Singapore, the Republic of Korea, the United Kingdom, and several Asia-Pacific countries that participate in the UNESCO Digital Kids initiative. Six mechanisms emerge from the analysis. Content has to be age-appropriate. Cultural heritage needs to enter the platform through interactive formats, not as static text. Information safety must be taught, not only filtered. Digital citizenship has to be built as a real competency. Teachers need preparation that goes beyond technical training and reaches into the pedagogy of values. And the platform itself must include monitoring tools that show what is actually working. None of these mechanisms is enough on its own. Together, they form a system. The paper closes with three practical proposals: a national framework for classifying children's digital content, a teacher support scheme tied to that framework, and a national repository of culturally rooted educational resources designed for primary school learners. The argument throughout is that national upbringing in a digital age is not a matter of adding patriotic content to existing platforms. It is a matter of designing the platforms themselves around the formative needs of young children.

Keywords: National upbringing; primary school; digital learning environment; cultural values; digital citizenship; information safety; character education; Uzbekistan; PQ-183; pedagogical mechanisms; cultural heritage; value-based education.

Introduction: Ask a teacher in any primary school today where children pick up new words, new heroes, new ways of thinking about themselves. The answer used to be straightforward: family, classroom, neighbourhood. It is no longer. A seven-year-old now spends real, measurable hours each week inside an environment shaped by recommendation algorithms, video creators, and games designed in a different country, in a different language, for a different cultural setting. None of this is going away. The honest question is what to do about it. For a country like Uzbekistan, the question carries particular weight. Reforms in education are moving fast. Internet access keeps expanding. At the same time,

society has set itself a clear task - to bring up a generation that knows its language well, respects its history, and carries a stable sense of belonging into a global information space. These two trends, the digital one and the cultural one, are not in conflict. But they only reinforce each other if someone takes the trouble to design the connection.

Presidential Decree No. PQ-183, signed on 15 May 2025, is the first serious attempt at that design [1]. It sets out three requirements for any digital content addressed to children: it must match their age, it must be safe in the informational sense, and it must reflect national values. Three short principles. Each one

obvious in isolation. Together, they form the legal foundation for everything else discussed in this article.

Recent research from outside Uzbekistan helps fill in the picture. Studies on digital citizenship, particularly those produced through UNESCO's regional initiatives, show that children today need a structured set of competencies that runs from basic literacy through online safety to cultural respect [10, 12]. Work on character education in the digital era keeps returning to a similar finding: tools like gamification, digital storytelling, and project-based tasks can support moral development, but only when they are tied to content that means something to the child's own world [15, 17]. Comparative work across the Asia-Pacific region tells the same story from a different angle. Children's digital experience varies enormously, and it varies in line with the policy choices their countries make.

The implication is uncomfortable but unavoidable. The digital environment is not neutral. It pulls identity in some direction. The only real question is which direction, and whether anyone is steering.

In what follows, I argue that the digital learning environment for primary schools in Uzbekistan can be steered toward a serious form of national upbringing - one that is not bolted on as an extra but built into the structure itself. I identify six mechanisms through which this can happen, drawing on international research and on the legal framework already in place at home. The aim is to give a workable model, not a final blueprint.

METHODOLOGY

The study is qualitative and conceptual. Three bodies of evidence shape it.

The first is international scholarship on digital education, character formation, and digital citizenship for children of primary school age. Sources were drawn mainly from peer-reviewed journals indexed in Scopus and Web of Science, supplemented by reports from UNESCO, UNICEF, and the OECD. Preference was given to publications from the past ten years.

The second is the legal and policy framework of Uzbekistan. Three documents do most of the work here: Presidential Decree No. PQ-183 [1], the Law on Education [2], and the Law on Informatization [3]. Reading them together shows how the legal expectations for children's digital content fit inside the broader regulatory environment.

The third is the practical experience of countries that have already invested heavily in linking digital learning with value-based upbringing - Singapore, the Republic of Korea, the United Kingdom, and members of the UNESCO Digital Kids Asia-Pacific initiative [10]. These cases were not chosen at random. Each one offered documented state-level policy, a value-oriented pedagogical layer, and at least some peer-reviewed evaluation.

Three methods of analysis were applied to this material. A comparative review made it possible to set national policy alongside international practice. Content analysis pulled out the categories that come up again and again in serious scholarship on the topic. A pedagogical synthesis then translated those categories into mechanisms applicable to Uzbek conditions.

Three theoretical traditions shaped the framework. R. Mayer's cognitive theory of multimedia learning explains how children of primary school age process visual and verbal information [4]. The character education tradition, most clearly articulated by T. Lickona, supplies the language of moral and value-based formation [11]. M. Ribble's model of digital citizenship, refined by UNESCO over the past decade, provides the framework for thinking about safe and ethical online behaviour [12, 14]. Bringing these three together allowed the study to treat national upbringing not as a separate school subject, but as a quality woven through the digital learning environment as a whole.

RESULTS

Six mechanisms came out of the analysis. They are not equal in weight, and they are not interchangeable. But they belong together. Removing one weakens the others.

1. Age-appropriate content design. Seven-year-olds are not small adults. Their attention runs in shorter bursts. Their abstract reasoning is still under construction. Their emotional response to images and music is strong, sometimes overwhelmingly so [4]. Material designed for older audiences and then pushed down the age scale rarely works as intended. The OECD has been making this point for years, and the empirical evidence behind it is solid [13]. For national upbringing, the implication is direct. Historical episodes, cultural symbols, and moral lessons have to be recast for a child's perceptual world. Borrowing adult formats without adjustment produces

material that children either ignore or misread.

2. Cultural heritage in interactive formats. There is now a fair amount of international evidence on what happens when culturally rooted content reaches children through interactive tools - animated stories, localized video e-books, virtual visits to heritage sites, gamified tasks based on folk tales and historical figures [16, 19]. Engagement goes up. Retention goes up. Children come back to the material on their own. One study on localized video e-books reported a measurable strengthening of pupils' sense of national identity and cultural pride after only a few weeks [16]. Uzbekistan has unusually rich raw material for this kind of work: classical poetry, epic literature, regional crafts, the lives of figures who shaped national history. The task is conversion, not creation. The substance exists. What is missing is the systematic redesign for digital delivery.

3. Information safety as an educational task. There is a temptation to treat online safety as a technical problem solved by filters and parental controls. UNESCO and UNICEF have both pushed back against this view, and for good reason [9, 14]. A child who has not been taught to recognize manipulation, low-quality information, or unsafe contact will eventually meet content that slips past any filter. Filters fail. Education does not, or at least it fails less often. Decree No. PQ-183 places information safety alongside age-appropriateness and national values as one of the three pillars of children's digital content [1]. This brings Uzbekistan's policy into line with current international thinking. What remains is the curricular work: teaching children, from the early grades, what privacy means, what respect online looks like, and how to step away from content that does not feel right.

4. Digital citizenship competencies. The Digital Kids Asia-Pacific study, run by UNESCO across Bangladesh, Fiji, the Republic of Korea, and Vietnam with more than five thousand children, identified five domains that hold up well across cultures: digital literacy, digital safety and resilience, digital participation, digital emotional intelligence, and digital creativity [10]. Each one is a real competency, not a slogan. Together they describe what it means for a child to function well in a digital environment. National upbringing fits naturally inside this framework. A child who acts responsibly online - kind, honest, careful with information, generous with creative effort - is doing so on the basis of internalized

values. The values come from somewhere, and the digital environment is one of the places where they take shape.

5. Teachers prepared in value-oriented digital pedagogy. A systematic review of primary school teachers' experience across eleven countries reached a conclusion worth taking seriously: the teacher's confidence and pedagogical preparation matter more than the platform itself [8]. Without a teacher who can connect a digital activity to a lesson about respect, honesty, or shared history, even the best-designed platform produces only surface effects. Children scroll, click, watch - and walk away with little. This is the part of the system that no app can replace. For Uzbekistan, building a national digital environment for primary education has to mean building, at the same time, a structured programme for teacher preparation. Not just training in how to use platforms. Training in the pedagogy of value formation when the medium does much of the talking.

6. Continuous monitoring and adjustment. Singapore's Student Learning Space and the Republic of Korea's AI Digital Textbook both come with built-in monitoring tools that track engagement, progress, and difficulty in real time [7]. The point of these tools is not surveillance. It is feedback. Without feedback, designers guess. With it, they can see which materials children actually use, which they skip, and which produce the kind of reflection that value-based learning is supposed to produce. A national platform for primary education in Uzbekistan would benefit from a similar layer, calibrated for indicators that matter for national upbringing - not just academic performance, but engagement with cultural content, retention of historical narratives, and the slow growth of competencies that take years to form.

Six mechanisms. None new in isolation. The contribution lies in how they fit together. A platform that does five out of six produces uneven results, and the missing piece tends to undermine the others. A platform that ignores teacher preparation, for instance, ends up with beautifully designed content that no one knows how to use. A platform that skips monitoring keeps repeating the same mistakes. The system holds together only when all six are present.

DISCUSSION

Two questions tend to come up in policy discussions on this topic, and both deserve a direct answer.

The first one runs roughly like this: does a strong emphasis on national values in children's digital content close them off from global culture? The international evidence suggests it does the opposite. Studies of national identity education through online platforms in the United Kingdom show that culturally rooted content, when handled with respect for diversity, makes children more, not less, capable of engaging with the wider world [5]. The mechanism is not hard to see. A child with a stable cultural foundation reads new information from a position of confidence. A child without that foundation is more exposed to whatever happens to be trending, more vulnerable to imitation without understanding [6]. The point of building national upbringing into the digital environment is not to wall children in. It is to give them somewhere to stand.

The second question concerns the relationship between traditional pedagogy and the new digital tools. There is a worry, sometimes voiced openly, that digital platforms will replace the teacher's role in moral and cultural formation. The evidence does not support this worry. What the evidence supports is something more interesting. Digital tools work best when they extend, reinforce, and personalize what teachers and families have already begun. The strongest outcomes in character education research from the digital era come from settings where digital activities are tightly linked to face-to-face conversations [11, 17, 19]. The platform supplies the resource. The educator supplies the meaning. Neither one substitutes for the other.

There is a third point worth adding here, even if it does not always make it into formal policy documents. In primary education, the affective dimension matters as much as the cognitive one. A child who feels respected, included, and emotionally engaged by a digital lesson on national heritage is far more likely to take it in than a child who experiences the same content as an obligation. This is why design choices - visual identity, tone of voice, the warmth or coldness of a narrator, the presence or absence of music, the personality of any animated characters - are not cosmetic. They sit close to the centre of value formation. International experience with localized educational media has shown that small choices in artistic presentation can decide whether

children seek out the material on their own time or avoid it entirely [16].

Inclusivity belongs in this discussion too. National upbringing in a digital environment has to reach all children: those with different abilities, those with different language backgrounds, those living in different parts of the country. Subtitles. Voice narration. Contrast-friendly interfaces. Compatibility with screen-reader software. None of these is optional, and none is a luxury feature. International policy frameworks treat them as conditions for ethical digital design for children [9, 13]. The same standard should apply at home.

A final note is needed on the limits of any single intervention. National upbringing is shaped by the family, the school, the wider social environment, and digital media all at once. A well-designed digital platform can amplify the work of the other components. It cannot replace them. Any honest evaluation of a national programme should ask not how many platforms have been launched, but how coherent the educational ecosystem around them has become.

CONCLUSION

The aim of the study was to identify the mechanisms through which national upbringing of primary school students can be strengthened inside a digital learning environment, and to outline a model that fits the conditions of Uzbekistan.

Six mechanisms emerged from the analysis. Age-appropriate content design. Cultural heritage delivered through interactive formats. Information safety treated as an educational task and not only a technical one. Digital citizenship competencies built up over time. Teachers prepared in value-oriented digital pedagogy. Continuous monitoring of what is happening on the platform. Each of these has a body of international research behind it. Each is supported, directly or indirectly, by the requirements set out in Presidential Decree No. PQ-183 [1]. The legal foundation is in place. What is missing is the systematic translation of that foundation into pedagogy, infrastructure, and teacher preparation.

International experience offers reference points. None of them is a template ready to be copied. The Republic of Korea's AI Digital Textbook shows what personalized, analytics-driven design can look like at scale [7]. Singapore's Student Learning Space demonstrates the

value of tight integration between digital content and the national curriculum. The United Kingdom's online education platforms illustrate how cultural content can be folded into everyday lessons across many subjects [5]. The UNESCO regional studies provide cross-country evidence on how children of primary school age experience and respond to digital citizenship education [10]. These cases offer principles. The work of adapting them - not transplanting them - is the work that lies ahead for Uzbekistan.

Three practical directions stand out. The first is the construction of a national framework for classifying children's digital content, with explicit criteria for age-appropriateness, safety, and value-related substance. The second is the development of a teacher support scheme tied to that framework - methodological materials, in-service training, and pedagogical communities of practice for the people who will actually deliver this work in classrooms. The third is the establishment of a national repository of culturally rooted educational resources: animated stories, interactive lessons, virtual heritage tours, gamified materials, all of them designed for the perceptual and emotional world of children aged seven to ten.

The study has limits worth naming. It is conceptual. It does not include large-scale empirical measurement of educational outcomes. The relative weight of each mechanism, and the way they interact in real classrooms, will only become clear through interventions and longitudinal observation. The framework offered here is a starting point for that empirical work, not a substitute for it.

What the analysis does support is a fairly direct conclusion. Uzbekistan has both the legal foundation and the pedagogical resources to build a digital learning environment in which national upbringing is not an external addition but a structural feature. Realizing this potential is not a quick task. It calls for the coordinated work of educators, researchers, content creators, and policymakers over a period of years. The reward of that work, if it is done well, is a generation of children who walk into the global digital space with a clear sense of who they are, where they come from, and what they value.

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