

Methodological recommendations for adult educators in prison – How to integrate the 21st century skills in the curriculum of vocational training in prison

Introduction

The technological progress causes a lot of changes in society and the job workplace. The impact of these developments and new ways of exchanging of information, transforms the relatively static industrial society into a dynamic knowledge society. Routine production employment is becoming less common in the workforce, while positions requiring flexibility and problem-solving skills are in greater demand. This is referred to as the innovation economy by Trilling and Fadel (2009). The goal of the innovation economy is to produce new ideas via entrepreneurship, teamwork, creativity, and technology applications. This has consequences for an individual employee but also for the organization as a whole. Innovative enterprises need to react quickly to these new developments and have to adapt by training employees inside and outside the company.

The technological progress has also an increasing impact on day-to-day life of each individual. The increase of new available technologies opens up new channels for sharing online information. Due to the ease of access to these new media, people who consume them also start producing their own content. This is shown in the constant growth in the quantity of new blogs, tweets, videos and information shared social media like Facebook and WhatsApp. Even people who try to avoid social media are constantly exposed to this new forms of media.

Aside from development of these new technologies, globalization is also important to our society. Technology makes it easier to collaborate with others abroad and communicate across borders. We are heading toward a global economy where our reliance on events occurring outside our comfort zone will only grow. This implies that both workers and citizens must to be capable of interacting with other people by use of the 21cs.

We currently live in a world where people are expected to create their own lives, as opposed to the 1950s when the youth followed a more or less conventional tracks. The adults of today more than ever should be empowered to make their own decisions and learn to focus on their unique traits, interests, and abilities. Significant social and economic changes are brought about by these developments, and these changes affect people's living and working environments in relation to the workplace. What kind of 21cs do adults need to contribute to the future of society and operate in the existing one?

Concept of the research

A literature study was conducted in order to create a conceptual framework for integrating the 21cs in vocational education in prison. The next step was to select fifteen good practices of vocational programs in prisons in five European countries and to cross them with keywords like "21cs," "digital literacy," and "media literacy." Also, for each good practice of a vocational program, a task sheet for teachers was elaborated to support trainers in teaching technical competences to the prisoners. The final step was to create and pilot fifteen task sheets for teachers to enhance the social skills of

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prisoners during vocational training. To evaluate the results, specialists in the field of 21cs were contacted, and educators, administrators, and legislators were also briefed on the findings. In order to support the prisoners in self-directed learning the involved teachers gathered fifteen games and exercises on an online platform.

21st century skill models

While most people believe that 21cs are crucial for students to have, there is disagreement about which talents are most crucial. There are numerous lists, each with a distinct emphasis and order of importance. The descriptions of the necessary skills, attitudes, and knowledge vary widely (Ledoux et al., 2013). Despite this variation, Voogt and Pareja Roblin (2010) distinguished a set of general, most mentioned skills in a literature study. They based their findings on five different models of 21cs: P21 (Partnership for 21cs), EnGauge, ATCS (Assessment and Teaching of 21cs), NETS (National Educational Technology Standards), and NAEP (Technological Literacy Framework for the 2012 National Assessment of Educational Progress). They also looked at the guidelines provided by UNESCO (2008), the European Union (2006), and the OECD (2004, as discussed in Ananiadou & Claro, 2009).

Voogt and Pareja Roblin (2010) examined models that were created in various situations with various goals and frameworks. There is variance in the perceived value of various abilities since they have distinct areas of specialization. The nomenclature that is employed to classify the skills varies as well. The descriptions frequently exclude explicit references to an educational setting (formal or informal) or a degree of education (primary, secondary, vocational, or higher education).

The projects emphasize the idea of the skills; they frequently lack instructional strategies or resources. However, it is also evident that the models share certain commonalities. Every model has a set of abilities related to thinking abilities. Critical thinking, creativity (or inventive thinking), and problem-solving abilities are mentioned in all models. Although not stated specifically in this category, several of the models in hindsight exhibit metacognition (Ledoux et al., (2013). The models offer a range of general skills, including ICT and communication abilities, in addition to thinking skills. The ICT abilities are listed in a rather inconsistent manner. Terms like media skills, digital literacy, information literacy, and technological skills are utilized. Social competencies, intrapersonal skills, and interpersonal skills make up the third category of abilities. The interpersonal and social skills—collaboration, social and cultural competencies, frequently focussed on citizenship—are shared by the models. The description of the intrapersonal competences cluster varies the greatest. This section discusses planning and management skills, flexibility, self-directed learning, career and life skills, self-regulation and productivity, and handling feedback.

21st century skills of this research

We identify twelve 21cs that are important to take into consideration, based on the literature study by Voogt and Pareja Roblin (2010) and translating this to the vocational training in prison context.

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Learning & innovation “The 4 C’s”	Digital Literacy	Career & life
Critical thinking & problem solving	Information literacy	Flexibility & adaptability
Creativity & innovation	Media literacy	Initiative & self-direction
Communication	ICT literacy	Social & cross-cultural interaction
Collaboration		Productivity & accountability
		Leadership & responsibility

These abilities are operationalized even further:

Learning & innovation “The 4 C’s”

Critical thinking & problem solving – Critical thinking is the capacity to develop one's own ideas or opinions based on solid evidence. To be more precise, it calls for the capacity to critically reflect on one's own learning process, to ask insightful questions, to identify knowledge gaps, to interpret, analyse, and synthesize information, and to be receptive to different viewpoints when faced with challenges. Problem-solving skills include the ability to identify an issue and devise a strategy for resolving it. More precisely, it calls for the capacity to recognize, evaluate, and characterize issues; to understand and utilize approaches to solving new problems; to produce, evaluate, and choose approaches to solving problems; to establish patterns and models; and to reach rational conclusions.

Creativity & innovation - The ability to generate new ideas, evaluate them, then develop and broaden them is known as creativity. More precisely, it calls for an open-minded and enterprising mindset, the capacity to think creatively and perceive new connections, familiarity with creative processes (such as brainstorming), and the courage to take chances, make mistakes, and accept it as a teaching moment.

Communication - This ability has to do with sending and receiving messages in an effective and efficient manner. More specifically, it calls for goal-oriented information exchange (speaking, listening, understanding the essence of a message, effectively expressing, etc.); managing diverse communication scenarios (debates, presentations, interviews, etc.); managing various media (texts, images, videos, etc.); and employing various tactics to take advantage of the opportunities provided by ICT for effective communication.

Collaboration - The ability to work with others to jointly achieve a goal while enhancing and supporting one another. More precisely, it calls for the capacity to identify various roles that you and others play, the capacity to ask for, offer, and receive assistance, a positive and receptive attitude toward alternative viewpoints, tolerance for cultural differences, the capacity to bargain and reach agreements with team members, the capacity to work in diverse groups, and the capacity for effective communication.

Digital literacy

This ability pertains to the responsible, effective, and efficient use of ICT. It combines information literacy, media literacy, and ICT literacy. **ICT literacy** include understanding the fundamentals of computers and how they work, being able to recognize, connect, and use hardware, being able to use word processors, spreadsheets, and presentation software, being able to work with mobile software, using the internet and email, and being aware of and handling security and privacy issues. The

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information, abilities, and attitudes required for deliberate, critical, and proactive media use are referred to as **media literacy**. In addition to knowing how the media functions and shapes our perceptions, it's important to be able to produce content, engage in social media, and think critically about how you use the media. The ability to recognize and evaluate a need for information, then search for, choose, process, utilize, and present pertinent information is known as **information literacy**.

Career & life

Flexibility & adaptability - Being flexible and adaptable both require the ability to change plans, priorities and ideas to suit changing circumstances. This requires understanding the balance between task urgency and importance. Adaptability often implies anticipating and planning ahead to allow for contingencies, while flexibility can be more immediate and situational, often with a need to accommodate others.

Initiative & self-direction - This ability has to do with the capacity to exhibit appropriate, goal-oriented conduct. To be more precise, it calls for the following skills: setting reasonable priorities and goals; performing goal-oriented activities (focus, self-motivation to complete a task, independence).

Social & cross-cultural skills - These include the capacity to interact, collaborate, and live with individuals from various racial, cultural, and social origins. More precisely, it calls for the capacity to communicate in various social contexts with respect for other people's perspectives, expressions, and behaviours; to identify and appropriately express social norms; to identify and acknowledge one's own emotions and express them; to demonstrate empathy and concern for others; and to be conscious of one's own personal and societal responsibilities as a citizen.

Productivity & accountability - Being productive means being able to produce a something of a certain quality with a given timeframe. Accountability is equally important since it is how we are assessed on productivity in the working world. People are held accountable for the actions they take to complete a task.

Leadership & responsibility – The ability to lead and monitoring the process of activities (planning, time management). Being able to reflect on actions and task performance. The skill to give feedback on one's own behaviour and to use that feedback to make appropriate follow-up decisions. Being aware of one's own development of competence and accepting responsibility for one's own actions and choices. The ability to see the long-term effects of one's own actions on the environment.

The overlap, applicability, and requirement of 21cs

There is some overlap in the underlying subskills given the broad scope of the skills. However, there are also observable distinctions in emphasis among the subskills based on the function of the primary skill to which they belong. For instance, from the perspective of critical thinking, finding information is mostly about creating your own opinion, but from the perspective of information literacy, finding information is a goal unto itself.

The study

This study set out to determine how to integrate the 21cs in the curriculum of vocational training in prison and to give tools and methods for implementation.

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1. How and to what degree is it possible to integrate the 21cs in the curriculum of vocational training in prisons? is the first of the following research questions.
2. Do educators receive enough assistance to incorporate 21cs into their instruction? If not, what is required of instructors and who bears this responsibility?
3. How much do teachers understand about students' learning objectives in connection to 21st-century abilities, and how do they monitor students' progress in this regard?

The study, which was divided into three parts, focused on planning and executing the task sheets for teachers on social skills in fifteen good practices of vocational training in prisons in five European countries.

1. Concept of the research: the process of creating a conceptual framework by examining definitions and models for 21cs.
2. Elaborating task sheets for teachers, guidelines for trainers and gathering games on an online platform to support prisoners in self-directed learning. To determine the degree to which vocational training teaching materials are effective and how the objectives of using the 21cs framework can be reached.
3. Analysis of the implemented method of using the task sheets for teachers to enhance social skills of prisoners during vocational training. The feedback of users, particularly teachers and in-depth case studies in the selected programs were used to examine the teaching practice based on the concept of the research.

Methods and instruments

A variety of educational resources on 21cs as well as the national legislative curriculum framework of five European countries were analysed in order to determine the fifteen good practices of vocational training in prison. Each national framework of reference for vocational training as well as the key objectives for every subject that should be taught in prison were fixed.

Furthermore, there exist optional extensions of the official curriculum that provide teachers with examples for incorporating the fundamental goals into their instruction. To determine how often the 21cs are addressed, both overtly (a literal depiction of the skills in the text) and implicitly (an interpretation of the skills might be assumed) in the non-mandatory frameworks were evaluated. The twelve 21cs, as stated in this theoretical framework, were incorporated in the instruments (task sheets for teachers) utilized for the piloting and analysis. Using this the feedback by questionnaires or informal meetings, it was possible to assess how much the skills are covered in the common reference framework. During a face-to-face training with practitioners the outcomes of the piloting were discussed and analysed.

Examining the degree to which these learning materials (task sheets for teachers and games for prisoners) pay attention to 21cs was the aim of the analysis of the learning materials. We used the feedback of the students and practitioners who answered four questions:

1. Whether and what had been changed during the piloting of the task compared to the original description or methodology
2. To what extent were the learners engaged, active
3. What was the learners' feedback on the task
4. Feedback from the teacher who conducted the piloting

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The guidelines for teachers and the usability of the work sheets for the students were examined. The conceptual framework served as the foundation for the development of the analysis. A template with these 4 questions was used for the assessment based on the activities and instructions. The project researchers examined the used methodologies and discussed their findings during the face-to-face training.

15 case studies in a limited number of schools in 5 European countries and a questionnaire for students were used in the examination of the implemented curriculum. The questionnaire's goals were to get a broad sense of how important students thought 21cs were, how much their practice reflected those skills, and whether or not they felt they had adequate guidance to put those skills into practice.

The questionnaire contained general information and 7 specific questions on the social skills: background information (age, birthplace, citizenship and educational level), the significance of the skills, the focus on the skills in the classroom and future and support. There were closed-ended questions YES/NO or a choice of answers. A preliminary version of the questionnaire was given to a specialist (researcher) in the field of 21cs, and two primary and secondary school teachers participated in a trial run to evaluate its validity. After evaluation the questionnaire's internal consistency was good for use.

Understanding how 21cs fit into prison teaching practices was the goal of the case study research. A case study, according to Yin (2009), is an empirical research that: (1) looks at a current experiences in its original context; and (2) lacks a distinct demarcation between the experiences and its setting. This study aligns well with the definition's components since the applied curriculum—and thus, the teacher's activities in particular—is the main focus point. The experiences of this research occurs in the context of educational courses in prison in the present. The teacher's behaviours are heavily influenced by the setting and it is impossible to analyse these experiences in isolation from the context. In order to pick the courses in 5 European countries for the case studies, consideration was given to the educational approach (traditional, innovative, traditional, and contemporary) as well as the level of focus on 21cs during vocational training. The official school plan for every school was examined, and interviews with teachers from various prison courses were conducted. A database of findings of the piloting of the task sheets for teachers was created and for each institute, the most significant findings were explained in relation to the main research topic during a face-to-face training with all partners. This made it feasible to conduct a qualitative comparison between the various institutes.

Results

The intended structure in using the task sheets for teachers

Finally all courses of this research had links with all twelve 21cs, but some were more frequently piloted than others. The skills that were most frequently highlighted included social and cultural,

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self-regulation and communication. Critical thinking was also given some consideration if useful in the training. Collaboration and problem-solving abilities were less in the focus of the courses during the piloting. Additionally, there was emphasis of digital literacy during IT courses. The value of utilizing information technology was acknowledged and where possible specifically brought up in relation to vocational training. "Working with computers and the Internet" was listed as a characteristic in some learning areas for vocational education, however in practical trainings like industrial painting or bakery, it wasn't possible to incorporate digital literacy tasks. If digital literacy was discussed, it was mostly focused on information literacy—finding information on the Internet—or computer proficiency in general (ICT (basic) skills). Seldom the aspects of media literacy arose. Creativity was given less attention. The vocational curriculum made reference to the value of creativity once, however it was absent from the main goals. The primary goals of vocational education solely include creativity in the area of culture. There was no direction provided by the project core objectives and national reference levels on how to incorporate 21cs on creativity into teaching practices.

The intended structure of this research was to provide 15 task sheets on vocational training which gave teachers guidance in development of the training. These task sheets were created in a same format and are available on the project website <https://socvoc.eu/>.

Example task sheet of teachers in vocational training : creative painting

Name of the creator of the material	
Title of the lesson plan / task sheet	Applying primer to the wall
Brief description of the competences the students will learn (including, for example, which scientific theory is based on)	<ul style="list-style-type: none"> -Being able to plan own work -Instructions regarding safety, health, hygiene, environment, welfare and quality. -Be able to prepare surfaces for painting and wallpapering. -Being able to perform basic painting techniques
Specialty/target group (if applicable)	Prisoners learning basic painting technique
Learning outcome(s) for the vocational profession	<ul style="list-style-type: none"> - Being able to create color tones for painting - Be able to use a color system for painting - Be able to delineate surfaces for painting - Be able to prepare paint for painting - Being able to paint layers of paint with a roller and brush.
Tools needed for this lesson plan/ task sheet (if applicable)	<ul style="list-style-type: none"> -primer -roller + brush -ladder -rag

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Approximate time to complete the task	4 hours
Suggested more comprehensive methodical guide for doing / carrying out the task (for the teacher or student)	<p>This task sheet can be used in a collaborative training methodology. Collaborative training is a methodology where trainees share their knowledge and expertise, teaching and learning from one another at the same time. This technique helps enhance the overall training experience for trainees by capitalizing on their skills, ideas, and knowledge.</p> <p>Pros of this methodology</p> <ul style="list-style-type: none"> -Creates a shared learning culture by building an atmosphere where team members are continually collaborating. -When training is conducted in groups, it reduces time investment and costs. <p>Promotes better knowledge retention.</p> <p>Cons of this methodology</p> <ul style="list-style-type: none"> -Slow participants cause the entire class to fall behind. -It can be challenging to get everyone in one place, at the same time.
- Warming up	The teacher explains to the students that a painter-decorator treats surfaces (especially walls, ceilings, floors) with appropriate products. He takes care of both pre-treatment of the surfaces to be treated as well as the finishing in which the treated surfaces have their get a definitive view.
- Explanation for the students at the start	The teacher informs the students that the purpose of this treatment is to protect and beautify buildings and interiors.
- Task description for the students	Task sheet for students
- Additional activities for the students	-The student is assessed by the evaluation stimulated to reflect on his own learning process. An evaluation also provides clarity about what is expected of the student and to what extent does not meet the predetermined criteria. The evaluation data can be used in consultation with the student to make decisions about the further process. It is recommended to review the evaluation criteria clearly communicated to the students in advance. These criteria are also best discussed in advance in the department.

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	-Based on the evaluation data, the teacher can decide whether or not to update the teaching-learning process and to make changes in his didactic actions
- Extra resources for learners	https://nationalcareers.service.gov.uk/find-a-course/details?courseId=142e6bf8-6cac-438e-aaa2-1cd5d0dd93fc&runId=a9c64613-5ecb-4db9-b046-14e966874084&searchTerm=jointing&town=&courseType=[%22%22]&courseHours=[%22%22]&courseStudyTime=[%22%22]&startDate=&distance=&filtera=False&page=2&orderByValue=
- Self-reflection for students	Firstly, the student's strengths and weaknesses are identified (diagnosis). If necessary, remediation and additional guidance can be provided.
- Feedback on the solution (if applicable) / Possibility to check	The teachers survey how the students use the educational tools and coaches the group if necessary. The students subsequently rate (on a scale of 1=none to 5=excellent) how often they used these tools.
License information (if we have a general one on the website, it is not necessary separately for each educational material)	None

Also the researchers developed 15 task sheets for teachers on the twelve social skills in the same format, albeit there were differences in the degree and method of implementation. These task sheets are also available on the project website <https://socvoc.eu/>.

Example task sheet on social skills – Values at work

Name of the creator of the material	
Title of the lesson plan / task sheet	Values at work
Targeted 21 st century skill	Social & cross-cultural interaction
Brief description of the competences the students will learn (including, for example, which scientific theory is based on)	-To enable learners to identify some of their own work-related values and attitudes. -To provide learners with a vocabulary and model with which to describe cultural influences on workplace behaviour.
Specialty/target group (if applicable)	The Values at Work checklist introduces an extensive range of dimensions along which work-related values vary, and explores the contrasting values that reside at each pole of each dimension.

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Learning outcome(s) for the vocational profession	This activity invites learners to reflect on some of their own cultural values, and asks them to explore the potential impact of cultural differences as they work in a new country or culture
Tools needed for this lesson plan/ task sheet (if applicable)	Values at work checklist
Approximate time to complete the task	45 min
Suggested more comprehensive methodical guide for doing / carrying out the task (for the teacher or student)	Research suggests that the way in which each of us thinks and acts at work can be influenced by the attitudes and values in the cultures to which we belong. When we come into contact with people from different cultural backgrounds we can sometimes encounter workplace behaviour that does not match our assumptions and expectations. We can sometimes even misinterpret other people's workplace behaviour and make incorrect assumptions based on our own cultural background. This can result in confusion, misunderstandings and even conflict. The checklist been designed to help you identify some of the ways in which your cultural background has had an impact on your workplace behaviour.
- Warming up	Give a copy of the Values at Work checklist to the learner.
- Explanation for the students at the start	The learner will have probably identified important cultural differences between his or her own approach and that of another culture or country of interest. Discuss some of the following questions with the learner:
- Task description for the students	<ol style="list-style-type: none"> 1. Read each description in order. 2. Decide which behaviour is closest to your own. If you identify with both statements, choose the one you identify with more often, or in more situations. 3. Mark a score indicating how strongly you tend to exhibit this behaviour. 4. When you have completed this activity, decide how you think people in a different culture of interest to you would probably respond to the statements.
- Additional activities for the students	<p>Where you have identified important cultural differences between you approach and that of people in the culture or country of interest to you, consider...</p> <ul style="list-style-type: none"> · Are these differences important?

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	<ul style="list-style-type: none"> · How might these differences become apparent in the working environment? · How might people from that country or culture perceive your approach? · What challenge do these differences present? · In what ways might you adapt your behaviour to manage and overcome these cultural differences
- Extra resources for learners	https://www.salto-youth.net/downloads/4-17-1789/Booklet%20Intercultural%20Communication%20Resource%20Pack.pdf
- Self-reflection for students	Let the students write about their experiences after this exercise
- Feedback on the solution (if applicable) / Possibility to check	The teachers survey how the students use the educational tools and coaches the group if necessary. The students subsequently rate (on a scale of 1=none to 5=excellent) how often they used these tools.
License information (if we have a general one on the website, it is not necessary separately for each educational material)	None

Overall, it was evident that while not very always clear on how and when to use the task sheets on social skills, the task sheets on vocational training offered several opportunities to start working on integrating 21 cs.

The implemented structure of using the task sheets for teachers

From November 2023 the researchers of 5 European countries implemented the structure of the 15 task sheets for teachers in vocational training and used one of the task sheets on social skills. To obtain a representative image of the target group and to make conclusions with a high confidence level, the minimum of 50 respondents was reached for gathering feedback after the piloting. The respondents' age and gender characteristics were comparable to those of former data on the topic of 21 cs in education.

The majority of vocational teachers and students were familiar with 21st century abilities, according to the feedbacks' results. 80% of the teachers state that they intentionally incorporate 21cs into their lessons. A minority of the teachers spend three-quarters or more of the classes focusing on the skills, while half of the teachers say they do this in one or two of their lessons. A very low number of educators claim to only occasionally or never pay attention to the 21 cs skills. In the future, the majority of teachers said they wish to emphasize 21cs more.

A number of important suggestions for improving this lesson's efficacy and applicability were derived from the teachers' piloting observations. The teacher's methodology was based on the task sheet developed by the researchers of the project. Also the teacher use the projects' guidelines for teachers

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for class settings and the formal vocational program for development of job skills. Each assignments was based on the approach of task sheet. It consist the elements for adult learning, with a theoretical part and the large majority based on practical exercises, reflections and simulation role plays. The group work was be formatted as an interactive training and was build upon the prisoners own skills, as well as filling in the cognitive-behavioral deficits, marked during the interviews and individual work.

Conclusion and discussion

Expert evaluation and a review of the literature are used to define 21 cs. Twelve skills were identified as a result of this research and are included in the conceptual framework. The significance of these skills is widely acknowledged on a global scale, but little is known about practical implementation strategies and attainable learning objectives in vocational training in prisons.

The project core objectives and national reference levels, and a variety of teaching resources for vocational training have all been examined in light of the conceptual framework. This research demonstrated how little guidance and encouragement institutes receive to integrate 21 cs into their instruction with the current curriculum. The national reference levels do not make specific mention of the social skills, and conventional teaching approaches do not provide much support for innovative comprehensive and organized instruction. Problem solving and creativity receive the least attention in the current curricula. This also holds true for media literacy in adult education in prison. Computational thinking is likewise rarely discussed in adult education in prison, while ICT (basic) skills and information literacy are given more emphasis.

Instructors and students are aware of 21st century abilities, according to the feedback of the participants. Before this research, in their teaching practice, teachers gave the 21 cs considerable thought, but not in a systematic or deliberate manner. Teachers find critical thinking and problem solving skills in particular to be challenging. Although the majority of instructors intend to focus more on the 21 cs in the future, they also feel that they are not competent enough and require professional development and more task sheets for teachers as developed in this research.

Curriculum development (specifying the skills in a curriculum framework and exemplary teaching materials), testing instruments (creating helpful frameworks and tools for monitoring and assessing the students), professional development (offering a wide range of professional development activities and school-wide networks for knowledge-sharing), and increased learning resources (focusing more on the skills in regular teaching materials and providing broader access to additional open learning materials) are four key types of support that are necessary to help teachers integrate the 21 cs skills into their teaching practice. It is also advised that the national curricular framework make a greater effort to incorporate these 21cs.

Notwithstanding the study's findings, it is challenging to assess whether the skills in the current curriculum are receiving "enough" attention due to the absence of a "benchmark" or standard. Although the national curriculum frameworks of the 5 European countries are designed to offer direction, it is also anticipated to allow institutes to exercise their own judgment when it comes to teaching. So each national body has to assess how important is it to include 21cs in the curriculum and if the entire national curriculum should be revised.

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