

Case study Croatia

The future of vocational education and training in Europe Volume 3

Facilitating vocational learning: the influence of
assessments

By Marija Pavkov, June 2022

AO/DSI/JP/Future_of_VET/003/19

*Disclaimer: this text is presented in its original form.
It has neither been revised nor edited by Cedefop.*

Please cite this publication as: Pavkov, Marija (2023). *Case study Croatia: The future of vocational education and training in Europe volume 3. Facilitating vocational learning: the influence of assessments.* Thessaloniki: Cedefop.

© Cedefop, 2023

Table of contents

CHAPTER 1. INTRODUCTION	3
1.1. Overview.....	3
1.2. Main changes in the assessment approach.....	4
1.2.1. VET student's final practical assignment.....	4
1.2.2. Validity and authenticity of assessment	7
1.2.3. Challenges linked to the current assessment approach	8
1.2.4. Digitalisation of assessment	9
1.2.5. Guidelines for the evaluation of learning processes and achievement of outcomes in primary and secondary education, including VET	10
CHAPTER 2. STATE MATURA EXAM	12
2.1. The history and the purpose of the State Matura exam	12
2.2. Integration of State Matura exam results into teaching practice	13
CHAPTER 3. NATIONAL EXAMS	16
3.1. National exams for VET students.....	16
3.2. National exams for general care nurses and IT technicians	17
CHAPTER 4. CHANGES DUE TO THE COVID-19 PANDEMIC AND OUTLOOK	20
SOURCES	21

CHAPTER 1. Introduction

1.1. Overview

Since 2009, general skills have no longer been part of the **final exam** (including final practical assignment) **for programme completion in IVET** in Croatia; only vocational skills are assessed. This assessment is conducted internally, and administered by school teachers, except for the final practical assignment, which could also be accomplished at the workplace. For VET graduates (of 4-5 years programmes, leading to EQF level 4) who wish to pursue higher education, it is necessary to take the State Matura exam on general education subjects.

The **State Matura** was introduced in 2008 and is taken in general subjects, such as Croatian language, mathematics and foreign language, and a set of elective subjects. The State Matura exam in Croatia is a secondary school leaving exam. It is obligatory for each secondary level student in gymnasias and VET students wishing to continue their education at a higher level. The State Matura exam is not dependent on national exams since the Matura exam assesses and certifies the knowledge acquired by students at the end of secondary level education.

National exams were introduced in 2011 and serve as a means of external assessment of learners' competencies (knowledge and skills) in pre-tertiary education, measured against the standards set by qualifications and curricula (Ministry of Science, Education and Sport, 2011). The results intend to provide an evidence base for policy development and quality assurance of VET provision. In addition, national exams present standardised exams intending to determine students' learning achievements in basic knowledge and skills in the key parts of the educational cycles at the national level. In addition, they provide an objective insight into the functioning of the education system. Based on the results obtained, measures for improving the quality of education are proposed. In 2018, the first national skills exam was developed and piloted for the general care nurse qualification, marking a shift towards the skills-oriented approach.

This case study presents how those three different approaches to assessing students' learning achievements are arranged, conducted, analysed, and changed over time.

The case study includes the following parts:

- (a) The remaining part of Chapter 1 presents the main changes in the assessment approach;
- (b) Chapter 2 provides more insights into the State Matura exam;
- (c) Chapter 3 discusses the national exams; and
- (d) Chapter 4 refers to the influence of the Covid-19 pandemic on assessment approaches.

1.2. Main changes in the assessment approach

The main changes in the assessment approach happened in 2008 when the **State Matura exam** was introduced. The exam is part of the external evaluation of the education system and is administered by the National Centre for External Evaluation (thereafter: Centre). The Centre's mission is to provide accurate and objective monitoring and the external evaluation of the national education system in collaboration with its stakeholders to define and improve the quality of education. The State Matura exam in general education is obligatory and marks the final students' achievement at the end of secondary education. The State Matura exam for VET learners is not a mandatory instrument for obtaining a VET qualification but is an obligatory exam for those VET students who intend to pursue further education at the tertiary level. Further details about the State Matura exam are provided in chapter 2 of this case study report.

In addition, **national exams** were introduced and piloted in the 4th study year for VET students from 2006-2009 to prepare for the introduction of the State Matura exam in 2008. The Centre, in cooperation with VET schools, administers national exams. More details about the national exams are provided in chapter 3 of this case study.

Parallel to the national exams and the introduction of the State Matura exam, there is a continuous validation and assessment of IVET students' vocational skills implemented since 2009 in the form of the **VET student's final practical assignment**. The final practical assignment is obligatory for all VET students and marks the successful finalisation of the VET education.

The State Matura and national exams are conducted using pen and paper. Current and future Centre's pilots and plans for the introduction of digital assessments are further elaborated in this report.

1.2.1. VET student's final practical assignment

The following types of VET programmes are distinguished in Croatia:

- (e) Four-year IVET programmes lead to EQF 4, after which a student can enter the labour market or continue education at the tertiary level (e.g. information

and communication technology technician, beautician agricultural technician). The programmes consist of general education and vocational education in approximately equal shares. Programmes are school-based, with practical training at school and in a company, with the work-based learning part less than 10% (CEDEFOP, 2020).

- (f) Three-year IVET programmes lead to an EQF level 4 qualification with which a student can enter the labour market (e.g. hairdresser, auto mechanic). Therefore they do not enable access to the State Matura exams nor a direct pathway to tertiary education. Instead, these programmes offer opportunities for students to enrol into a four-year programme (e.g. to create an opportunity for enrolment at higher education level), an opportunity rarely chosen by students. The students can take additional and supplementary exams of the first, second and third year of a particular qualification, enabling them to enter the fourth grade (CEDEFOP ReferNet Croatia 2014). Three-year programmes are offered as i) school-based programmes for industry-related occupations and crafts; ii) apprenticeships programmes, referred to as 'unified model of education' with an apprenticeship period at the employers' premises.
- (g) Two-year IVET programmes lead to qualification at EQF level 3 (eg. welder, administrator). These programmes target mostly young people at risk of early school leaving. These programmes are a minor IVET pathway with a very small number of learners (CEDEFOP, 2020).

Since 2009, general skills have no longer been part of the final exam for programme completion in IVET in Croatia. The vocational skills assessment is conducted internally, at the school level, by school teachers, and externally at the employer's premises (students' final practical assignment / exam).

The **student's final practical assignment** aims to check, evaluate and reward the student's professional competencies of a certain level following the qualification the student acquires (Ministry of Science, Education and Sports, 2009).

The final practical assignment aims to prepare and defend the final thesis, evaluate and assess students' professional competencies, acquired through education according to the prescribed professional-theoretical and practical parts of curricula, thus completing the enrolled educational program and gaining conditions for inclusion in the labour market. The final assignment can be a project, an experiment followed by an elaborate, or any other assignment aligned with the VET programme. The final thesis has the characteristics of a research paper / project assignment requiring independent students' literature research, analysis of obtained data, evaluation of data, etc. In cases when the final thesis

consists of practical work with the study/elaborate, the written contribution should contain a presentation and description of the practical part and results that can be supported by evidence (Agency for Vocational Education and Training and Adult Education, 2020). The preparation and the defence of the final thesis is carried out in the organisation of the school or institution that is awarded approval for the implementation of a particular educational program. The student who defended the final thesis is issued a certificate of the final thesis. The certificate of the final thesis is a document confirming the acquired professional competencies. Upon passing the final thesis, students acquire a secondary school qualification and receive a certificate of completion from the VET school.

The Centre for External Evaluation of Education explored the idea of standardisation of the final practical assignment, similar to the State Matura, but no significant developments were done in this regard. The great challenge was that Croatia has a significantly high number of VET programmes, and it is difficult to standardise them.

During the 3- or 4-year VET education, the student's achievements are assessed internally by VET institutions and at employers' places where mentors observe and monitor students' practical achievements. The methods, procedures and elements of assessment of the achieved level of competencies derive from national, sectoral, vocational, and subject-based curricula.

The teacher and mentor assess the learner's achievement based on work at the employer's premises, where they keep prescribed pedagogical documentation and records to monitor and assess the level of achievement of learning outcomes during work-based learning. This assessment is performed at the end of work-based learning during one school year. The mentor has an obligation to report to the VET institution and parents/guardians about the implemented assessment of the student's progress and achievement at the workplace. The mentor's report contains information on monitoring student/learner's progress. It is based on examining the achievement of learning outcomes through assessments of responsibility development, self-initiative and self-regulation, communication and collaboration (1).

For the practical part of the employer-provided curriculum, students' achievement assessment is carried out by examining knowledge and skills halfway through the student's education. The examination of knowledge and skills is carried out by a committee appointed by the headmaster of the vocational school, consisting of a teacher of professional and theoretical contents and a

(1) https://eacea.ec.europa.eu/national-policies/eurydice/content/assessment-vocational-upper-secondary-education-10_en

teacher of practical training and exercises, i.e. a vocational teacher and a mentor at the employer. In case the examination of knowledge and skills reveals that the objectives and tasks of the practical part of the curriculum are not being achieved, the committee shall determine the causes of their non-realisation, the ways and the deadline for the additional assessment (Ministry of Science and Education, 2020b).

It could be argued that employers and mentors are external assessors because they evaluate and assess students' practical skills and knowledge that proceed from the learning objectives defined in the VET curricula.

1.2.2. Validity and authenticity of assessment

Validity of assessment in the **State Matura** exam is ensured through a quality assurance system which includes a set of protocols for each step of the exam implementation: exam content development; quality of exam questions analysis; production of exams; authorship of exam questions; content review; methodological review; implementation of Matura exams in schools; etc.

Validity is also ensured by respecting Guidelines and recommendations of the International Test Commission, Achievement for All (AFA), National Council on Measurement in Education (NCME), International Reading Association Standards (IRA) ⁽²⁾. This refers to validity of assessment of State Matura exam and **national exams** since National Center for External Evaluation of Education acts upon these international standards and principles.

The authenticity of the State Matura exam is ensured because the exam fully corresponds to the curricula content and pre-defined learning outcomes. The recent exams were developed based on the new outcome-based VET curricula. In addition, the authenticity is reflected in problem-based State Matura exam questions that reflect real-life situations. For example, there are sets of problem-based questions in subjects such as mathematics, chemistry, biology, that require competences at higher cognitive levels to bring the solutions to the problems.

The Centre is developing new approaches for the **assessment and testing VET practical skills** rather than only knowledge. An example is assessment of the skills in health care. It should be noted that the assessment of skills in the health care field is extremely demanding and that many schools are

⁽²⁾ Interview with the representative National Centre for External Evaluation of Education

not even equipped with appropriate equipment for testing skills ⁽³⁾. In such cases, skills assessment is conducted in a limited number of schools with equipment. However, the National Center for External Evaluation of Education will explore possibilities for organising the assessment and testing of VET practical skills potentially in work-based settings

1.2.3. Challenges linked to the current assessment approach

The assessment system in Croatia does not foresee regular national exams during the whole period of IVET, but focuses on the final exam – the State Matura exam with general subjects and the final practical assignment for the assessment of general skills. Therefore, IVET students in Croatia are not used to regular assessments; therefore, the final exams present a significant stress level for students.

Since the number of IVET students is continuously decreasing, whereas the number of students at universities remains at a significantly higher level, the universities focus on attracting as many students as possible. Therefore, the criteria for enrolment to higher education institutions are lowered, meaning that the requirements for completing the State Matura exam are also lowered ⁽⁴⁾.

The system and organisation of the State Matura exam are rather complex since it includes 36 subjects for which new tests need to be developed yearly.

The State Matura exam is regarded as a standard, a minimum level of knowledge students acquire. This leads to the effect that some teachers do not teach beyond the State Matura exam requirements. This can be regarded as a negative effect.

In Croatia, there is no effect of over-testing because no testing is introduced at different educational levels; at the end of each school year; at the end of each term, etc. These tests would be beneficial for students to acquire objective information about their learning achievements; and to provide insight into professional orientation, i.e. in which subjects they are achieving better results and whether such results reflect students' personal interests ⁽⁵⁾.

⁽³⁾ Interview with the representative National Centre for External Evaluation of Education

⁽⁴⁾ *ibid*

⁽⁵⁾ *ibid*

1.2.4. Digitalisation of assessment

The National Centre for External Evaluation of Education has not yet introduced digital assessments, however some applications are being developed and tested to digitalise the assessment process.

In 2019, the Centre conducted a pilot on digital assessment of students' outcomes, with 8,000 students (primary and secondary education), with a minority represented by VET students. The pilot showed that students are not acquainted with the digital approach to assessment; therefore, the digital approach interferes significantly with the demonstration of acquired skills and knowledge. As a result, the schools are not implementing digital assessments of students' outcomes on the school level; therefore, this approach is still not accepted by students. In conclusion, the Centre does not yet plan to develop and introduce digital approaches to the assessment ⁽⁶⁾.

The Centre has developed and implemented several applications and digital material for teaching and learning for the State Matura exam, grading exams, and monitoring exam implementation process.

The project '*In the Graduation Centre*' ⁽⁷⁾ started in February 2020 in response to the COVID-19 pandemic. The project aims to continuously produce and publish digital materials from different subjects that could help teachers to adjust the implementation of teaching and preparation of teaching materials for online education. In addition, the project should support students in easier adoption of learning contents that are an integral part of the prescribed examination literature (State Matura exam literature).

On the projects' website, digital materials for individual school subjects can be accessed. In addition to reviewing the material, it is possible to set up a continuous query for a particular task. Users are also allowed to upload documents from personal computers, which is extremely useful in case high school graduates would like to write a school essay for the exercise as part of the Croatian language State Matura exam and send it to the Centre for evaluation. In addition, the system allows students to demonstrate and share their resolution process to a specific examination question to gain feedback from the Centre regarding its accuracy and resolution process (National Centre for External Evaluation of Education, 2020).

In 2020, digital materials for students and teachers were created and published. The following digital materials were developed for students, including

⁽⁶⁾ ibid

⁽⁷⁾ [https:// www.centarmature.hr](https://www.centarmature.hr)

VET students: materials for the Croatian language, Mathematics, Physics, History, Biology, Chemistry, Psychology, Philosophy, Geography, Politics and Economics, Sociology, Latin, Italian and Spanish.

For teachers, the following documentation was developed: Guidelines for the preparation of exam tasks; guidelines for the development of tasks and their application in evaluation; guidelines for the use of tasks from the conducted State Matura exams and guidelines for the use and preparation of questions for the State Matura exam.

Application for State Matura exams e-grading was developed in 2020 as a beta (test) version. The e-grading application enables the assessment of the State Matura exam on computers or tablets following all standards and safety measures implemented during the current grading method (paper and pen). The application was developed in cooperation with the Faculty of Electrotechnics and Informatics (Zagreb University) and enabled faster and more reliable grading of State Matura exams.

When the Centre receives State Matura exams back from schools, they are scanned and saved on the Centre's server. As such scanned documents, they are ready to be graded by external assessors in the e-grading application.

The application was tested in the fall of 2020 during the State Matura exam in Informatics, where the members of the expert working group - teachers from the subject of Informatics, used the application for grading exam results. With the application's support, all Informatics exams were successfully graded within that period. The professional working group members were pleased with the application and suggested some concrete improvements (National Centre for External Evaluation of Education, 2020).

The *automatic word counting application* enables a faster, safer, and thus more efficient word counting process. During 2020, a beta (test) version of the automatic counting application was developed. The application counts words in the essay assignment of the State Matura exam in the Croatian language. The application was tested during the 2020 autumn term of the State Matura exam in the Croatian language (National Centre for External Evaluation of Education, 2020).

1.2.5. Guidelines for the evaluation of learning processes and achievement of outcomes in primary and secondary education, including VET

The Guidelines were published in 2020 as one of the results of the ESF-funded project 'Support for the Implementation of Comprehensive Curricular Reform'. The document defines essential terms and describes different approaches to assessing student learning processes and achievement of learning outcomes.

Because critical decisions are made for the student based on the evaluation results, evaluation requires the complete professional integrity of the teacher and the use of objective information on learning and student achievement.

The guidelines advocate for complementarity and balanced evaluation of what has been learned with approaches aimed at systematically monitoring and assessing the achievement of outcomes and expectations. They are focused on encouraging gaining insight into learning and teaching, recognising strengths and weaknesses in learning and planning future learning and teaching. These approaches do not result in the allocation of student grades. Instead, they are focused on the provision of feedback and on exchanging experiences on learning processes and acquiring knowledge and skills in relationship to the pre-defined set of educational outcomes defined in the curricula (Ministry of Science and Education, 2020a).

The Guidelines clearly describe three different approaches to the assessment:

- (a) assessment for learning;
- (b) assessment as learning;
- (c) assessment of the learned / acquired knowledge.

The first two approaches are used to improve learning and teaching methods. The assessment of the acquired knowledge is used for assessing and reporting on achievements and progress at the end of a given education period (e.g. teaching topic; teaching unit; study semester; study year) in relation to the learning outcomes defined in the curricula. When evaluating what knowledge has been acquired, three forms of evaluation, depending on who designs, plans and implements the evaluation (teacher or external institution) can be identified, and they are as follows:

- (a) internal (e.g. teacher assessing students' learning outcomes at the school level);
- (b) hybrid (form of an assessment that should be designed and planned by the examination Centre in collaboration with experts and is implemented by teachers);
- (c) external evaluation (e.g. State Matura exam).

CHAPTER 2. State Matura exam

2.1. The history and the purpose of the State Matura exam

The state Matura as a standardised national final exam was conducted for the first time in Croatian schools in 2009/2010. The State Matura exams and evaluates the knowledge, skills and abilities of students who have obtained them during their primary and secondary school education following the prescribed curricula (secondary education). Based on the state Matura's results, each student's knowledge is assessed objectively and impartially, thus obtaining a comparable grade for all students in the Republic of Croatia for a particular study year. The State Matura exams serve three aims: final examination and requirement for graduation from general upper-secondary schools, entrance exams for undergraduate studies at the tertiary level for all students (including VET graduates) and external evaluation of student competencies.

Students in gymnasias, vocational and artistic programs can take the State Matura exams, whose education lasted at least four years and whose secondary education ends with the development of and a defence of the final thesis in the organisation of the school.

The State Matura exam is conducted by taking the *compulsory and elective part exams*. Mandatory exams are in the following general education subjects: Croatian, mathematics and foreign language. Exams in the compulsory part of the state Matura can be taken at one of two levels: higher (A) and basic (B) level (Ministry of Science and Education, 2019). The compulsory subjects are: biology, ethics, philosophy, physics, geography, music, ICT, chemistry, art, logic, politics and economics, history, psychology, sociology, and religious education.

In the compulsory part of the state Matura, only a foreign language can be taken, the content prescribed by the examination catalogue, and from which the student was positively assessed during at least two school years during secondary education.

In the State Matura exam and its elective parts, the subjects to be taken are selected by the student, considering that a maximum of six elective subjects can be applied for in one examination term. The list of exams in the elective part of the State Matura exam is issued by the Centre for each school year until the beginning of exam registration, with the prior consent of the Ministry of Science and Education.

The Centre prepares examination catalogues for all general education subjects taken at the State Matura exam, working materials and manuals for exam preparation, and prepares and delivers examination materials to examination places. The Centre determines the place of writing the State Matura exam. The exam is written in selected schools on the whole territory of Croatia.

In terms of the procedure, the State Matura exams are conducted simultaneously, with the same examination materials and in the same way for all applicants in the Republic of Croatia. Such an approach provides comparable results, making the selection process for enrolment in higher education fairer and more transparent (Ministry of Science and Education, 2019).

Candidates apply for the State Matura exams and study programs through the National Information System for Applications to Higher Education Institutions (NISpVU) ⁽⁸⁾. Enrolling the higher education institution is impossible without the State Matura exam.

The National Centre conducts the External Evaluation of Education exams in cooperation with schools and other public institutions involved in implementing the State Matura exam.

A high school diploma is issued to a high school student on the passed obligatory part of the State Matura, and a certificate on passed State Matura exams is issued on the passed elective part. All other applicants are issued a certificate of passing the State Matura exams.

Around 90% of VET students enrolled in 4- and 5-year iVET, take the Matura exam.

2.2. Integration of State Matura exam results into teaching practice

Centre for External Evaluation of Education (2018) researched secondary school teachers (3,934 participants), principals (238 participants) and professional associates (373 participants) on their attitudes and ideas related to the State Matura exam; and how the Matura results feed into the restructuring and change in the teaching of the compulsory subjects: Croatian language, mathematics, foreign language.

For the Croatian language, the results demonstrate that 73% of teachers use strategies for solving tasks from the State Matura exam to prepare for the

⁽⁸⁾ <https://www.postani-student.hr/Ucilista/Default.aspx>

exam, and 53% use the Matura exam simulation activity. In addition, the results showed that the State Matura exam contributed the most to the increase in the use of various technologies and a variety of additional materials and increased the teaching of reading strategies in the processing of literary texts and the assignment of writing an essay. This speaks of a more pronounced contribution of the State Matura exam because the percentage of teachers who are more used to specific procedures in teaching after the introduction of the State Matura exams is higher than the percentage of teachers who equally use specific methods in teaching both before and after the introduction of the State Matura exam (National Center for External Evaluation of Education, 2020).

This is primarily true for the essay writing exercise, demonstrating that 79% of teachers have been using it to a greater extent since the introduction of the state Matura compared to 19% of teachers who applied it equally before and after the introduction of the State Matura exam.

The State Matura exam contributes to a lower extent to the creation of interrelations of the content in the Croatian language, teaching text analysis, writing exercises of other written forms, reading comprehension exercises and encouraging higher cognitive processes and solving tasks at higher cognitive levels. Approximately 50% of teachers use these procedures to a greater extent. In addition, 40% of teachers use reading texts from a variety of different sources.

Interestingly, 69% of teachers expressed their dedication to processing the content and outcomes from previous State Matura exams, and almost an equal share of teachers (65%) teach the contents of the compulsory teaching plan and programs that are not in the exam catalogue. In other words, the State Matura exam determines which teaching content will be taught by teachers. Still, it is not the sole criterion for selecting the teaching content because teachers are already guided by the obligatory curricula (National Centre for External Evaluation of Education, 2020).

Regarding the subject of Mathematics, the research concluded that teachers show great interest in the topic related to the state Matura and consider that they are well acquainted with the characteristics of the examination. They believe that exams are of good quality but that increasing the number of tasks/test assignments that measure higher cognitive processes is necessary. The teachers also state that it would be good to supplement the exam catalogues with content related to preparing students for the state Matura. The exams are very much related to the curricula segments focused on mathematics. Students show greater interest in the contents more represented in the State Matura exams; consequently, teachers attach higher importance to these contents. The research demonstrated that achieving better results on State Matura exams

motivates students. However, for the teachers, this results in pressure from the schools where they are employed and from students and parents. The expectations for preparatory students to achieve good State Matura exam results are high. (National Centre for External Evaluation of Education, 2020).

Regarding the foreign language examination, the research found that teachers believe that State Matura exams in foreign languages largely determine what teaching contents will be taught and in what way. Over half of teachers organise additional classes to prepare students for the State Matura exam. State Matura exams in foreign languages encourage more frequent use of discussion essays in teaching and solving tasks at higher cognitive levels. The introduction of the State Matura exam encouraged a more frequent use of the essay-type task in teaching with 68% of teachers and a short composition with 42% of teachers. About half of teachers teach listening comprehension to a greater extent, while other types of tasks are used by most teachers as often as before the introduction of the state Matura. As many as 71% of teachers notice that the state Matura has significantly impacted their way of evaluating essays in which they use precisely the criteria for evaluating essays at the State Matura exam. Almost half of the teachers claimed to adjust the teaching content to the level of exams chosen by most of their students, which is essential because most students choose a higher level of exams. As many as 59% of teachers consider that speaking skills should be introduced in the State Matura exam (National Center for External Evaluation of Education, 2020).

CHAPTER 3. National exams

3.1. National exams for VET students

National exams in VET schools were introduced in the school year 2006/2007 for students of 4-year VET programmes when exams in Croatian language and Mathematics were conducted. In 2007/2008, students of 4-year VET programmes participated in national exams of compulsory subjects (Croatian language, Mathematics and foreign language). National exams conducted from 2006-2008 served as a preparation for the probationary State Matura exam implemented in the school year 2008/2009 (gymnasia students and 4-year VET school students) (National Center for External Evaluation of Education, 2018). After the State Matura exam implementation, national exams for VET students were not implemented, with the exclusion of national exams for general care nurses and IT technicians (see chapter 3.2).

National exams in Croatia were conducted in primary and secondary schools, including VET schools:

- (a) to obtain valid and comparable information on student performance for formative evaluation of student work;
- (b) for setting norms and standards of evaluation;
- (c) to provide feedback to schools to evaluate and improve the quality of their work;
- (d) to prepare students and teachers for the State Matura exam;
- (e) to develop an external evaluation methodology to monitor students' achievement over the years.

National exams were organised and conducted by the National Center for External Evaluation of Education, and they were in the form of written tests. However, the national exams did not assess occupation-specific and transversal skills.

Since the national exams for VET students were implemented only during three consecutive school years (2006-2009), more than 15 years ago, the effect and their influence on the potential changes in teaching and learning practices cannot be explored. In addition, no research was conducted to examine how the national exams' results fed into the teaching practice.

The document 'Model of the National exams system' (National Centre for External Evaluation of Education, 2018) provides an insight into the past and future national level activities that will enable the introduction of national exams in primary and secondary education, including VET, on an annual basis.

The document clearly states that in none of the assessments implemented so far in the format of national exams a comprehensive concept of national examinations has been devised. This concept would be implemented periodically to monitor student achievement, to ensure a purposeful system of the analysis and use of national exam results to improve the quality of learning and teaching, and which would enable making strategic decisions at the level of education policy.

In national trials conducted so far, the emphasis was on the Centres' and schools' capacity building, piloting the methodology and evaluation procedures and addressing shortcomings in the evaluation system. In the forthcoming years, the experience gained so far will be used to develop national trials for the new model of the national examination system (National Centre for External Evaluation of Education, 2018) which will also introduce mechanisms for quality assurance.

In May 2022, national exams will be conducted in 8th grade (primary education) in Croatian language, mathematics, biology, chemistry, and physics. The results will provide insight into the students' achievements which could guide a student to a better decision on the choice of enrolment to secondary level schools – particularly in relation to VET schools ⁽⁹⁾.

National exams in VET schools are not planned because PISA is conducted focusing on 15-year students, and the PISA results are regarded as relevant and informative for the education system. PISA includes IVET students enrolled in 3-year VET education. Data has been available since 2009.

3.2. National exams for general care nurses and IT technicians

The five-year IVET programme leads to a general nursing qualification at EQF4 level with an opportunity for progression to tertiary education. The first two years are focused on general education and are followed by three years of VET programme. The programme is school-based with a specific structure, unlike other VET programmes in Croatia. The programme was created in 2010/2011 to

comply with the European regulation on training requirements for nurses responsible for general care¹⁰ (CEDEFOP, 2020).

Designing and piloting national exams in theoretical subjects for general care nurses started in 2011. VET providers have been regularly administering the exams since 2015. From 2017 until 2019 national exams were administered for IT technicians (4-year VET education programme), salespersons (4-year VET education programme) and general care nurses (5-year VET education programme) in theoretical subjects only. In 2018, the first national skills exam was developed and piloted for the general care nurse qualification assessing skills acquired in obligatory VET modules for the occupation general care nurses, marking a shift towards the skills-oriented approach. The national exams for general care nurses are conducted in the 5th year (last year) of education and are focused on assessing skills required for obtaining the qualification. National exams are conducted separately from the State Matura exam.

The curricula for general care nurses are primarily focused on professional skills and, to a lower extent, on general skills and general subjects (Croatian language, mathematics, foreign language) that are part of the State Matura exam. Therefore, their success rate for enrolment in higher education institutions is lower (¹¹).

The Centre organises in schools a theoretical exam in the compulsory vocational modules for the occupation of 'medical nurse of general care / medical technician of general care'. It prepares the national skills exam from mandatory vocational modules for the profession of 'nursing general care / medical general care technician' (National Centre for External Evaluation of Education, 2021).

The goal of the theoretical part of the exam is to develop standardised theoretical exams that capture the level of teaching content and competencies of applicants from compulsory vocational modules in accordance with the general principles of the profession. The test results will guide schools and students in receiving accurate, valid and timely information on the level of knowledge acquisition defined by the vocational curriculum for the profession of 'nurse general care / general care medical technician.'

The goal of the practical part of the exam (skills assessment) of the mandatory vocational modules for the occupation of 'medical nurse of general

(¹⁰) Directive No 2005/36/EC on recognition of professional qualifications, Annex V, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0036&from=EN>

(¹¹) Interview with the representative National Centre for External Evaluation of Education

care / medical technician of general care' is to determine the areas of examination and the list of skills to be tested. It also aims to describe the procedures for demonstrating and assessing each skill, making exam specifications and conducting exams in schools.

CHAPTER 4. Changes due to the Covid-19 pandemic and outlook

Due to Covid-19 outbreak, the procedures for the State Matura exam have changed to the extent necessary to comply with the ongoing health conditions and health measures. Those included the higher distance between students, wearing a mask, disinfection, etc (Croatian Institute of Public Health, 2020). Even though the State Matura exam is still implemented with pen and paper, the Centre has introduced and tested an e-grading application that will be used for grading State Matura exams for all subjects since 2022/2023 as described in chapter 2 of this report.

The Agency for Vocational Education and Training and Adult Education published Recommendations on implementing the final thesis for VET students (Agency for Vocational Education and Training and Adult Education 2020). It is stated that in conditions where teaching is implemented at a distance, the final thesis can also be defended at a distance. The student is required to prepare a short presentation and answer questions. The student can demonstrate a particular skill, simulate a specific device, describe a technological procedure, etc.

The Recommendations describe different approaches for the assessment of students' practical skills at a distance. For example, it is possible to prepare a visual demonstration of the exercise or experiment, which students can watch and do the same exercise at home and answer the questions. For exercises/experiments/tasks that include specific tools, machines, equipment, food, etc., assigning a simple task or part of a task is recommended considering the availability of technologies, materials, accessories, tools and food that the student has at his disposal. In addition to compliance with all other evaluation criteria such as the appearance of the final product, tidiness, observance of the profession's rules, completion of the task within the given deadline, observance of phases and sequence of process execution and similar. Student work can be evaluated according to given components using criteria of evaluation (rubrics), photo documentation, e-portfolio development, etc., always taking into account the availability of technology to the individual students and the unambiguousness of instructions.

These changes introduced are temporary to enable students to demonstrate their competencies and to allow students to finish their education regularly.

Sources

References

URLs accessed 10.02.2022.

Agency for Vocational Education and Training And Adult Education (2020). *Recommendations for the implementation of the final thesis assignment based on the practical work in the system of vocational education and training* (Preporuke za provođenje obrane završnog rada i učenja temeljnog na radu u sustavu strukovnog obrazovanj i osposobljavanja), <https://www.asoo.hr/wp-content/uploads/2020/06/Preporuke-za-provo%C4%91enje-obrane-zavr%C5%A1nog-rada-i-u%C4%8Denja-temeljnog-na-rad-u-sustavu-strukovnog-obrazovanja-i-osposobljavanja.pdf>

CEDEFOP ReferNet Croatia (2014). *Croatia VET in Europe – country report*. <https://www.refernet.hr/media/1186/country-report-2014.pdf>

CEDEFOP (2020). *Vocational education and training in Croatia – Short description*, https://www.refernet.hr/media/1298/vet-in-croatia_short-description.pdf

Croatian Institute of Public Health (2020). *Instructions for the implementation of the State Matura exam during a coronavirus pandemic* (Upute za provedbu državne mature tijekom epidemije koronavirusa (COVID-19)) <https://mzo.gov.hr/UserDocsImages//dokumenti/Obrazovanje/DrzavnaMatura//Upute%20za%20provedbu%20drzavne%20mature%20tijekom%20epidemije%20koronavirusa%20COVID-19%2003-05-2021%20-%20Izvor%20HZJZ.pdf>

EURYDICE (2021). *Croatia – Assessment in vocational upper secondary education*, https://eacea.ec.europa.eu/national-policies/eurydice/content/assessment-vocational-upper-secondary-education-10_en

Ministry of Science, Education and Sport (2009). Rules on the preparation and defence of the final thesis, *National Gazette 118/2009*, https://narodne-novine.nn.hr/clanci/sluzbeni/2009_09_118_2914.html

Ministry of Education (2019). Regulation on taking the State Matura exam, *National Gazette* 1/13; 41/19, 127/19, 55/20, 53/21 <https://www.ncvvo.hr/wp-content/uploads/2021/05/Pravilnik-o-polaganju-DM-procisceni-tekst1.pdf>

Ministry of Science and Education (2020a). Rules on the manner of organising and conducting classes in vocational schools (Pravilnik o nacinu ograniziranja i izvodenju nastave u strukovnim skolama), *National Gazette* 140/09; 130/20. https://narodne-novine.nn.hr/clanci/sluzbeni/2009_11_140_3430.html and https://narodne-novine.nn.hr/clanci/sluzbeni/2020_11_130_2473.html

Ministry of Science and Education (2020b). *Guidelines for the evaluation of learning processes and achievement of outcomes in primary and secondary education* (Smjernice za vrednovanje procesa učenja i ostvarenost ishoda u osnovnoškolske i srenjoškolskome odgoju i obrazovanju), ESF Project Support for the implementation of Comprehensive Curricular Reform, <https://mzo.gov.hr/UserDocsImages/dokumenti/Obrazovanje/NacionalniKurikulum/Smjernice/Smjernice%20za%20vrednovanje%20procesa%20ucenja%20i%20ostvarenosti%20ishoda%20u%20osnovnoskolskome%20i%20srednjoskolskome%20odgoju%20i%20obrazovanju.pdf>

National Centre for External Evaluation of Education (2018). *Analysis of the connection between the Matura State Matura exam and teaching in secondary schools - Review of the results obtained through a questionnaire in secondary schools* (Analiza povezanosti ispita drzavne mature i nastave u srednjim skolama – Prikaz rezultata dobivenih primjenom upitnika u srednjim skolama); <https://www.bib.irb.hr/1115716>

National Centre for External Evaluation of Education (2018). *Model of the System of National Exams* (Model sustava nacionalnih ispita), <https://www.ncvvo.hr/wp-content/uploads/2018/11/Model-sustava-nacionalnih-ispita-finale-s-naslovnicom-21.11.2018..pdf>

National Centre for External Evaluation of Education (2021). *YEARLY REPORT about work and business of the National Centre for External Evaluation of Education* (GODIŠNJI IZVJEŠTAJ o radu i poslovanju Nacionalnog centra za vanjsko vrednovanje obrazovanja 2020). https://www.ncvvo.hr/wp-content/uploads/2021/07/Godisnji-izvjestaj-2020_za-web.pdf