Qualitative research report on VET graduates' experience in Barcelona, Sofia, and Vienna

Project AIVET

Developing AI tools for sharing intelligence on the local labour markets of VET graduates.

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LinkedIn https://www.linkedin.com/company/aivetproject

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Authors

- Xavier Rambla (UAB)
- Paulina Robalino (UAB)
- Niklas Pernhaupt (UNIVIE)
- Svetlomir Zdravkov (IPS-BAS)

Consortium

- Universitat Autònoma de Barcelona (UAB, leader)
- Free University of Brussels (VUB)
- University of Vienna (UNIVIE)
- Institute of Philosophy and Sociology, Bulgarian Academy of Sciences (IPS-BAS)
- Council of the Catalan Chambers of Commerce (CCCC)

Associated partners

- Barcelona Activa
- Molengeek
- Statistik Austria
- Open Society- Sofia
- Education Authority- Sofia

External advisory board

- Kristinn Hermansson (University of Glasgow)
- Jenni Tikkannen (University of Turku)
- Paula Guimaraes (University of Lisbon)

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Executive summary

Executive summary (English)

This report presents the findings of Work Package 4 of the AIVET project, which investigates local capacities for skills and labour market intelligence in Barcelona, Sofia, and Vienna between 2023 and 2026. The primary objective is to compare the official, policy-driven understanding of "skills intelligence" with a qualitative perspective grounded in the experiences of vocational education and training (VET) students and recent graduates.

The study is based on 59 semi-structured interviews conducted in Barcelona and Sofia, alongside the analysis of a dedicated dataset in Vienna. Across the three cities, the research explores how learners and graduates perceive their skills, and how these perceptions shape their professional trajectories, strategies, and aspirations. The evidence reflects the diversity of institutional VET systems and highlights how these structures influence both skill development and labour market integration. The three city samples were deliberately drawn from different tiers of the VET system — predominantly basic-secondary and second-chance provision in Vienna, upper-secondary VET in Sofia, and tertiary-level VET in Barcelona. This does not support a strict like-for-like comparison of graduates at an equivalent qualification level; rather, it is intended to capture the diversity of institutional environments in which VET is delivered. Contrasts between cities should therefore be read as differences between institutional configurations, not as performance rankings of comparable cohorts.

The findings reveal distinct patterns in each context. In Barcelona, professional knowledge emerges through three differentiated modes, suggesting a plural and layered understanding of skills beyond formal qualifications. In Sofia, respondents frequently report dissatisfaction with outdated curricula, pointing to a disconnect between training provision and current labour market demands. Vienna, by contrast, demonstrates a comprehensive and adaptable VET ecosystem, characterised by second-chance programmes, diversified training pathways, and a well-established apprenticeship system.

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Across all cases, several cross-cutting issues challenge prevailing policy assumptions. First, the dominant focus on identifying "skills matches and gaps" tends to overlook learners' subjective experiences, including varying levels of satisfaction and frustration. This approach risks reducing professional knowledge to technical competencies, while neglecting the important interplay between skills, attitudes, and values. Second, the emphasis on linear educational and career pathways overestimates individuals' capacity for forward planning, underestimating both the time required for meaningful decision-making and the role of vocational calling in shaping career choices.

The report highlights key lessons for policymakers. Effective VET policies require ongoing deliberation and collaboration among stakeholders across different professional domains. Moreover, skills development strategies must strike a balance between short-term labour market needs and long-term personal and professional growth. A more holistic understanding of skills—one that integrates technical, social, and experiential dimensions—is essential for designing responsive and inclusive VET systems.

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Резюме (Bulgarian)

Настоящият доклад представя резултатите от Работен пакет 4 на проекта AIVET, който изследва местния капацитет за анализ на уменията и пазара на труда в Барселона, София и Виена в периода между 2023 и 2026 г. Основната цел е да се сравни официалното, обусловено от политиките разбиране за „р аналитична информация за уменията“ (skills intelligence) с качествена перспектива, основана на опита на учащи всистемата за професионално образование и обучение (ПОО) и на наскоро завършили учащи.

Изследването се основава на 59 полуструктурирани интервюта, проведени в Барселона и София, както и на анализ на специално създаден набор от данни за Виена. В трите града изследването разглежда начина, по който учащите и завършилите възприемат своите умения и как тези възприятия оформят професионалните им траектории, стратегии и стремежи. Данните отразяват разнообразието на институционалните системи за ПОО и подчертават как тези структури влияят както върху развитието на уменията, така и върху интеграцията на пазара на труда. Извадките от трите града бяха умишлено формирани от различни нива на системата за ПОО — предимно основно исредно образование и програми за втори шанс във Виена, ПОО на горно средно равнище в София и ПОО на висше/третично равнище в Барселона. Поради това не е възможно да се направи строго сравнение между завършили с еквивалентно ниво на квалификация; по-скоро целта е да се улови разнообразието от институционални среди, в които се предоставя ПОО. Следователно различията между градовете трябва да се разглеждат като различия между институционални конфигурации, а не като класации на съпоставими групи.

Резултатите разкриват различни модели във всеки от контекстите. В Барселона професионалното знание се формира чрез три разграничени начина, което предполага многопластово и плуралистично разбиране за уменията, надхвърлящо формалните квалификации. В София респондентите често изразяват неудовлетвореност от остарелите учебни програми, което сочи към несъответствие между предлаганото обучение и актуалните изисквания на пазара на труда. За разлика от това, Виена

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демонстрира цялостна и адаптивна екосистема на ПОО, характеризираща се с програми за втори шанс, разнообразни пътеки за обучение и добре утвърдена система за дуално обучение и чиракуване.

Във всички разгледани случаи се открояват няколко общи въпроса, които поставят под съмнение преобладаващите политически допускания. На първо място, доминиращият фокус върху идентифицирането на „съответствия и дефицити на умения“ има тенденция да пренебрегва субективния опит на учащите, включително различните нива на удовлетвореност и неудовлетвореност. Този подход крие риск от свеждане на професионалното знание до технически компетентности, като същевременно пренебрегва важното взаимодействие между умения, нагласи и ценности. На второ място, акцентът върху линейните образователни и професионални пътеки надценява способността на хората да планират бъдещето си, като подценява както времето, необходимо за вземане на смислени решения, така и ролята на професионалното призвание при формирането на професионалния избор.

Докладът очертава ключови изводи за политиците и отговорните институции. Ефективните политики в областта на ПОО изискват постоянен процес на обсъждане и сътрудничество между заинтересованите страни от различни професионални сфери. Освен това стратегиите за развитие на уменията трябва да постигат баланс между краткосрочните потребности на пазара на труда и дългосрочното личностно и професионално развитие. По-холистичното разбиране за уменията — такова, което интегрира техническите, социалните и основаните на опита измерения — е от съществено значение за проектирането на адаптивни, отзивчиви и приобщаващи системи за ПОО.

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Resumen ejecutivo (Spanish)

Este informe presenta los resultados del Paquete de Trabajo 4 del proyecto AIVET, que analiza las capacidades locales en materia de inteligencia sobre las competencias y el mercado laboral en Barcelona, Sofía y Viena entre 2023 y 2026. El objetivo principal es comparar la comprensión oficial de la «inteligencia sobre las competencias» (skills intelligence), determinada por las políticas públicas, con una perspectiva cualitativa basada en las experiencias de estudiantes y titulados recientes de educación y formación profesional (EFP).

El estudio se basa en 59 entrevistas semiestructuradas realizadas en Barcelona y Sofía, junto con el análisis de un conjunto de datos específico para Viena. En las tres ciudades, la investigación explora cómo los estudiantes y titulados perciben sus competencias y cómo estas percepciones configuran sus trayectorias, estrategias y aspiraciones profesionales. Las evidencias reflejan la diversidad de los sistemas institucionales de EFP y ponen de relieve cómo estas estructuras influyen tanto en el desarrollo de competencias como en la integración en el mercado laboral. Las muestras de las tres ciudades se seleccionaron deliberadamente a partir de distintos niveles del sistema de EFP: principalmente educación secundaria básica y programas de segunda oportunidad en Viena, EFP de educación secundaria superior en Sofía y EFP de nivel terciario en Barcelona. Por ello, el estudio no permite una comparación estricta entre titulados con un nivel de cualificación equivalente; más bien, pretende captar la diversidad de los entornos institucionales en los que se imparte la EFP. En consecuencia, las diferencias entre ciudades deben interpretarse como diferencias entre configuraciones institucionales y no como una clasificación del rendimiento de cohortes comparables.

Los resultados revelan patrones diferenciados en cada contexto. En Barcelona, el conocimiento profesional emerge a través de tres modalidades diferenciadas, lo que sugiere una comprensión plural y estratificada de las competencias que va más allá de las cualificaciones formales. En Sofía, los participantes expresan con frecuencia su insatisfacción con unos planes de estudio desactualizados, lo que apunta a una desconexión entre la oferta formativa y las demandas actuales del mercado laboral. Viena, en cambio, presenta un ecosistema de EFP integral y adaptable, caracterizado por programas de segunda

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oportunidad, itinerarios formativos diversificados y un sistema de aprendizaje profesional y formación en alternancia ampliamente consolidado.

En todos los casos se identifican varias cuestiones transversales que cuestionan algunos de los supuestos predominantes en las políticas públicas. En primer lugar, el énfasis dominante en identificar «ajustes y brechas de competencias» tiende a pasar por alto las experiencias subjetivas de los estudiantes, incluidos sus distintos niveles de satisfacción y frustración. Este enfoque corre el riesgo de reducir el conocimiento profesional a competencias técnicas, ignorando la importante interacción entre competencias, actitudes y valores. En segundo lugar, el énfasis en itinerarios educativos y profesionales lineales sobreestima la capacidad de las personas para planificar su futuro, subestimando tanto el tiempo necesario para tomar decisiones significativas como el papel de la vocación profesional en la configuración de las opciones de carrera.

El informe destaca varias lecciones clave para los responsables de las políticas públicas. Las políticas eficaces de EFP requieren una deliberación y una colaboración continuas entre las partes interesadas de distintos ámbitos profesionales. Asimismo, las estrategias de desarrollo de competencias deben encontrar un equilibrio entre las necesidades del mercado laboral a corto plazo y el crecimiento personal y profesional a largo plazo. Una comprensión más holística de las competencias —que integre las dimensiones técnicas, sociales y experienciales— resulta esencial para diseñar sistemas de EFP inclusivos, capaces de responder adecuadamente a las necesidades cambiantes.

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Resum executiu (Català)

Aquest informe presenta els resultats del Paquet de Treball 4 del projecte AIVET, que analitza les capacitats locals en matèria d'intel·ligència sobre les competències i el mercat laboral a Barcelona, Sofia i Viena entre 2023 i 2026. L'objectiu principal és comparar la comprensió oficial de la «intel·ligència sobre les competències» (skills intelligence), determinada per les polítiques públiques, amb una perspectiva qualitativa basada en les experiències d'estudiants i titulats recents d'educació i formació professional (EFP).

L'estudi es basa en 59 entrevistes semiestructurades realitzades a Barcelona i Sofia, juntament amb l'anàlisi d'un conjunt de dades específic per a Viena. A les tres ciutats, la recerca explora com els estudiants i els titulats perceben les seves competències i com aquestes percepcions configuren les seves trajectòries, estratègies i aspiracions professionals. Les evidències reflecteixen la diversitat dels sistemes institucionals d'EFP i posen de manifest com aquestes estructures influeixen tant en el desenvolupament de competències com en la integració en el mercat laboral. Les mostres de les tres ciutats es van seleccionar deliberadament a partir de diferents nivells del sistema d'EFP: principalment educació secundària bàsica i programes de segona oportunitat a Viena, EFP d'educació secundària superior a Sofia i EFP de nivell terciari a Barcelona. Per tant, l'estudi no permet una comparació estricta entre titulats amb un nivell de qualificació equivalent; més aviat, pretén captar la diversitat dels entorns institucionals en què s'imparteix l'EFP. En conseqüència, les diferències entre ciutats s'han d'interpretar com a diferències entre configuracions institucionals i no com una classificació del rendiment de cohorts comparables.

Els resultats revelen patrons diferenciats en cada context. A Barcelona, el coneixement professional emergeix a través de tres modalitats diferenciades, cosa que suggereix una comprensió plural i estratificada de les competències que va més enllà de les qualificacions formals. A Sofia, els participants expressen sovint insatisfacció amb uns plans d'estudi desactualitzats, fet que apunta a una desconnexió entre l'oferta formativa i les demandes actuals del mercat laboral. Viena, en canvi, presenta un ecosistema d'EFP integral i adaptable, caracteritzat per programes de segona oportunitat, itineraris formatius diversificats i un sistema d'aprenentatge professional i formació en alternança àmpliament consolidat.

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En tots els casos s'identifiquen diverses qüestions transversals que qüestionen alguns dels supòsits predominants en les polítiques públiques. En primer lloc, l'èmfasi dominant en la identificació d'«ajustos i bretxes de competències» tendeix a passar per alt les experiències subjectives dels estudiants, inclosos els seus diferents nivells de satisfacció i frustració. Aquest enfocament comporta el risc de reduir el coneixement professional a competències tècniques i d'ignorar la important interacció entre competències, actituds i valors. En segon lloc, l'èmfasi en itineraris educatius i professionals lineals sobreestima la capacitat de les persones per planificar el futur, i subestima tant el temps necessari per prendre decisions significatives com el paper de la vocació professional en la configuració de les opcions de carrera.

L'informe destaca diverses lliçons clau per als responsables de les polítiques públiques. Les polítiques d'EFP eficaces requereixen una deliberació i una col·laboració contínues entre les parts interessades de diferents àmbits professionals. Així mateix, les estratègies de desenvolupament de competències han de trobar un equilibri entre les necessitats del mercat laboral a curt termini i el creixement personal i professional a llarg termini. Una comprensió més holística de les competències —que integri les dimensions tècniques, socials i experiencials— és essencial per dissenyar sistemes d'EFP inclusius i capaços de respondre adequadament a les necessitats canviants.

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Zusammenfassung für Entscheidungsträger (German)

Dieser Bericht stellt die Ergebnisse des Arbeitspakets 4 des AIVET-Projekts vor, das die lokalen Kapazitäten im Bereich der Kompetenz- und Arbeitsmarktintelligenz in Barcelona, Sofia und Wien im Zeitraum von 2023 bis 2026 untersucht. Ziel ist es, das offizielle, politisch geprägte Verständnis von „Skills Intelligence“ mit einer qualitativen Perspektive zu vergleichen, die auf den Erfahrungen von Lernenden und Absolventinnen und Absolventen der beruflichen Bildung und Ausbildung (VET) basiert.

Die Studie stützt sich auf 59 halbstrukturierte Interviews, die in Barcelona und Sofia durchgeführt wurden, sowie auf die Analyse eines eigens zusammengestellten Längsschnittdatensatzes für Wien. In allen drei Städten untersucht die Forschung, wie Lernende und Absolventinnen und Absolventen ihre Kompetenzen wahrnehmen und wie diese Wahrnehmungen ihre beruflichen Laufbahnen, Strategien und Zielvorstellungen prägen. Die Ergebnisse spiegeln die Vielfalt der institutionellen VET-Systeme wider und zeigen, wie diese Strukturen sowohl die Kompetenzentwicklung als auch die Integration in den Arbeitsmarkt beeinflussen. Die Stichproben der drei Städte wurden bewusst aus unterschiedlichen Ebenen des VET-Systems ausgewählt: überwiegend aus Angeboten der oberen Sekundarstufe und des zweiten Bildungswegs in Wien, aus der beruflichen Bildung auf der oberen Sekundarstufe in Sofia und aus der tertiären beruflichen Bildung in Barcelona. Daher ist kein strenger Vergleich von Absolventinnen und Absolventen auf einem gleichwertigen Qualifikationsniveau möglich. Vielmehr soll die Vielfalt der institutionellen Rahmenbedingungen erfasst werden, in denen VET angeboten wird. Unterschiede zwischen den Städten sollten daher als Unterschiede zwischen institutionellen Konfigurationen verstanden werden und nicht als Leistungsranking vergleichbarer Gruppen.

Die Ergebnisse zeigen in den jeweiligen Kontexten unterschiedliche Muster. In Barcelona entsteht berufliches Wissen in drei unterschiedlichen Formen, was auf ein pluralistisches und mehrschichtiges Verständnis von Kompetenzen hindeutet, das über formale Qualifikationen hinausgeht. In Sofia äußern die Befragten häufig Unzufriedenheit mit veralteten Lehrplänen,

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was auf eine Diskrepanz zwischen dem bestehenden Bildungsangebot und den aktuellen Anforderungen des Arbeitsmarktes hinweist. Wien weist dagegen ein umfassendes und anpassungsfähiges VET-Ökosystem auf, das durch Programme des zweiten Bildungswegs, vielfältige Ausbildungswege und ein gut etabliertes System der dualen Ausbildung geprägt ist.

In allen untersuchten Fällen treten mehrere übergreifende Themen hervor, die vorherrschende politische Annahmen infrage stellen. Erstens führt die dominante Konzentration auf die Identifizierung von „Kompetenzübereinstimmungen und Kompetenzlücken“ dazu, dass die subjektiven Erfahrungen der Lernenden, einschließlich unterschiedlicher Zufriedenheits- und Frustrationsniveaus, häufig übersehen werden. Dieser Ansatz birgt die Gefahr, berufliches Wissen auf technische Kompetenzen zu reduzieren und dabei das wichtige Zusammenspiel von Kompetenzen, Einstellungen und Werten zu vernachlässigen. Zweitens überschätzt die Betonung linearer Bildungs- und Berufswege die Fähigkeit der Menschen, ihre Zukunft vorausschauend zu planen. Dabei werden sowohl die Zeit, die für fundierte Entscheidungen erforderlich ist, als auch die Bedeutung beruflicher Berufung für die Gestaltung von Berufsentscheidungen unterschätzt.

Der Bericht hebt zentrale Erkenntnisse für politische Entscheidungsträger hervor. Wirksame VET-Politiken erfordern einen kontinuierlichen Dialog und eine Zusammenarbeit zwischen den relevanten Akteuren aus unterschiedlichen beruflichen Bereichen. Darüber hinaus müssen Strategien zur Kompetenzentwicklung ein Gleichgewicht zwischen den kurzfristigen Anforderungen des Arbeitsmarktes und der langfristigen persönlichen und beruflichen Entwicklung junger Erwachsener herstellen. Ein ganzheitlicheres Verständnis von Kompetenzen, das technische, soziale und erfahrungsbezogene Dimensionen integriert, ist entscheidend für die Gestaltung bedarfsgerechter und inklusiver VET-Systeme.

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Introduction

Between 2023 and 2026, AIVET is exploring the local capacity for skills and labour market intelligence in Barcelona, Sofia, and Vienna. This report is an output of Work Package 4: Mapping the skills and the trajectories of VET graduates. This activity aims at comparing the official concept of skills intelligence with a qualitative account. The AIVET research teams have conducted 59 interviews in Barcelona and Sofia and analysed a dataset of longitudinal interviews in Vienna. These interviews have explored how students and recent graduates perceive their skills and in which ways they are defining their strategies and professional plans.

As per the application approved by the Spanish Erasmus+ Agency (SEPIE) in 2023, the report aims to introduce the theme, describe the interviews, present the main findings in each of these research settings and ponder to what extent the skills intelligence indicators capture.

The consortium and the associate partners gather universities and stakeholders of vocational education and training (VET) in the three cities. Additionally, a team of engineers based at the Free University of Brussels (VUB) has developed an AI tool that contributes to clean register data on VET internships. An associate partner from Brussels is also contributing. Thus, the participants are complementary in terms of academic disciplines and professional specialisation.

AIVET draws on the common expertise of the partners in a variety of previous projects. Remarkably, UAB, the University of Vienna (UNIVIE) and several external advisors have collaborated in Horizon 2020 YOUNG_ADULLLT (URL https://www.young-adulllt.eu/) and Horizon Europe CLEAR (https://clear-horizon.eu/), which examine lifelong and VET policies along with young people's life trajectories. UAB, the Free University of Brussels (VUB) and one of the external advisors have collaborated in Erasmus+ Employability in Programme Development (https://www.gla.ac.uk/research/az/epd/), which has piloted a similar AI tool to monitor the employability of higher education graduates.

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The report frames skills within a double relationship between institutions and monitoring systems. VET institutional systems and the CEDEFOP skills intelligence dashboard are related in this way, but connections between both sides depend on issues of measurement that cannot easily capture students' and recent graduates' subjective experiences. After a theoretical section articulates the main research question on this topic, a methodology section describes the interviews and the samples of respondents in Barcelona, Sofia, and Vienna. The long analysis section presents the main findings in each city. Then, a discussion section highlights the main cross-cutting issues. Finally, the conclusion makes recommends considering qualitative evidence to produce fully reliable skills intelligence.

Researching skills

Skills intelligence is not a standalone endeavour but hinges on a configuration of social relationships. Statisticians, data scientists, labour market experts, employers, educators and graduates construe information about educational pathways and job opportunities in diverse ways. This report focuses on the understanding of students and recent VET graduates.

Previous reports have outlined a feedback loop that should link VET systems and skills intelligence. A key point is that this feedback loop operates amid complex sets of social relations that institutionalise certain modes of measurement and influence on the biographical experiences of educational and employment trajectories. A further report will examine the co-production of skills intelligence resulting from technological innovation and the interactive expertise of employers and educators.

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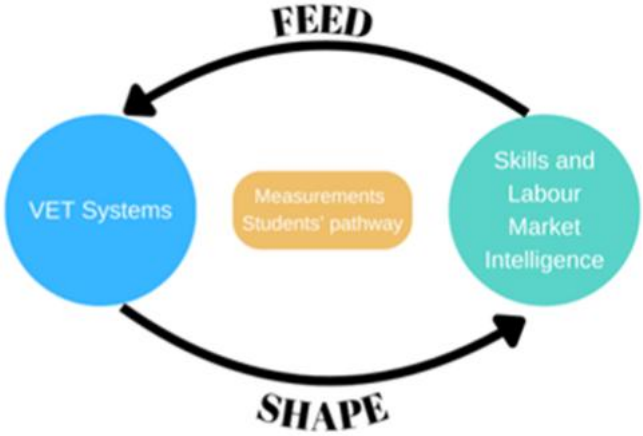


Figure 1 Intelligence loop of local VET systems

Figure 1 sketches the loop that links VET systems with skills and labour market intelligence. The idea is that VET systems contribute to shaping this intelligence, while the intelligence itself is necessary to evaluate VET programmes. Ideally, reforms should result from evaluations that draw on this evidence base.

This report examines how graduates have construed their learning during their educational and work experiences. It considers their school experience, choice of programme and explicit reflections on the technical and social aspects of their professions. The key research question, thus, addresses the social relationship between official definitions of learning, on the one hand, and students and graduates' actual perception of learning, on the other hand.

The European Commission's (2017) European Pillar of Social Rights has systematised an array of rights including lifelong learning as well as employment, minimum income, health care, essential services, and education. This initiative casts educational priorities as components of a 'skills agenda' must 'embed gender equality' in lifelong learning and deliver to everybody 'regardless of gender, racial or ethnic origin, religion or belief, disability, age or sexual orientation.' Thus, skills intelligence provides information about both economic competitiveness and social cohesion. The initiatives that must enact this agenda consist of building upskilling pathways, improving everybody's transversal skills as well as

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encouraging adults to engage with lifelong learning through micro-credentials and individual accounts of learning.

CEDEFOP (2025) has elaborated a dashboard of skills intelligence indicators for all the member states of the European Union. The array of relevant themes is an ambitious attempt to deliver an encompassing monitoring tool that reports on automation risk, digital skills intensity, digital skills level, education mismatch, employed population, employment trends, employed population participating in learning, employment by detailed occupation, employment by field of study, employment growth in high-tech economy, employment growth in high-tech occupations, future annual employment growth, future detailed employment by sector, future employment growth, future employment needs, future job openings, future job prospects, future qualification demand, future training gap, involuntary part-time employment, involuntary temporary employment, long-term unemployment rate, monthly Gross Income, occupation employment in sector, over-qualification rate (of tertiary graduates), part-time employment, recent employment trends, recently hired workers, relative monthly gross income, sector employment by occupations, self-employment, skill demand, skill gap, skill utilisation, skills in online job advertisements, temporary employment, training participation, unemployment by occupation, unemployment rate, VET occupations, and young persons neither in employment nor education or training (NEET).

Thus, the underlying rationale considers that formal classifications of educational levels (ISCED) and the European Qualification Framework (EQF) will match the needs of employers in a knowledge economy and address emerging skills shortages. Additionally, this policy assigns education and employment authorities the responsibility to support individuals in progressing from lower to higher levels of qualification. Notably, these assumptions are embedded in a conception of individual progress as a linear progression, akin to climbing a ladder or a social elevator.

Despite the undeniable advantages of clarifying policy goals and establishing transparent monitoring and evaluation procedures—such as those underpinning the EPSR and the Skills Intelligence frameworks—policy evaluation experts have warned of significant measurement risks. When quantitative indicators become benchmarks for participants in a collective

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initiative, whether individuals or entire countries, the definition of numerical thresholds creates powerful incentives that can shape behaviour. As a widely cited adage suggests, “the more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more likely it is to distort the social processes it is intended to monitor” (Campbell, 2011, p34).

This observation highlights the limits of quantitative data, which often fail to capture the full complexity of social realities, including education and skills development. Consequently, mixed method approaches that combine quantitative and qualitative tools are essential to mitigate these risks. In this context, the present report examines the experiences and perceptions of VET students and graduates, thereby shedding light on dimensions that institutional skills intelligence systems seek to measure but frequently overlook due to inherent measurement constraints.

The following sections account for the important concerns of VET graduates that these classifications cannot capture. Certainly, the findings challenge certain aspects of the official narrative, not least because it depicts students and learners as undifferentiated rather than sentient subjects. But mostly, the report highlights the complex relationship between students, learners or graduates and the officers and experts that have coined the official approach. Besides biases, the key point is that the portrait of gradual individual improvement overlooks the experience of the real subjects of vocational education and training.

The most significant limitations of current skills intelligence are the inconsistent description of knowledge as a ranking of lower and upper levels and the neglect of graduates’ identities and decisions. The former reduces learning to a non-discerning scale disconnected from cognition and affect, while the latter fails to recognise that programmes function simultaneously as pathways and crossroads.

Although the report cannot elaborate on the social theories of agency and knowledge, it is indispensable to remark the relevance of these concepts for vocational education and training (VET). Unlike children and teenagers in primary and lower secondary education, most VET students are adults that associate education with the development of their own life plans.

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These endeavours lead them to reflect on the characteristics of professional knowledge and ponder to what extent they fit in certain occupations.

Diverse modes of professional knowledge are the first focus of the report. Although it cannot include a comprehensive discussion of the concept in the social sciences, a reminder of the relevant intellectual debate will greatly clarify the research and the analysis.

The statistical measurement of learning and skills normally produces rankings that range from lower to higher levels. For example, cooking at Michelin-star level, conducting an organ examination, or responding to a cyber-attack constitute high-level applications of knowledge across different professions. However, actual professional knowledge cannot be only defined by this type of hierarchies. Studies of science and the sociology of knowledge have convincingly argued that all types of knowledge including professional knowledge taught in VET programmes have a structure (Hordern, 2017). It cannot be reduced to a point in a continuum because each profession draws on a specific set of disciplines and is developed amid relationships between schools and employers. Additionally, graduates have also learnt to appraise the quality of communication between schools and employer organisations.

Decisions and pathways are the second focus of this report. Whether graduates are conceived as students or learners in the expert parlance, it is plausible to observe that they are active protagonists of their education. Their experiences accumulate in a personal curriculum that frames their technical learning within a longer view of their journey across school programmes, apprenticeships, and the labour market (Billet, 2021). Adult education studies have greatly contributed to wider debates on reflexivity in the social sciences. Their consistent findings on the personal side of learning in adult life have really enriched the corpus of background papers on which skills intelligence must rely. These studies have clearly demonstrated that many adult students link their choices to a deeper understanding of their biography, which they often review at the same time as they enrol in a VET programme (Alheit & Schulze, 2022).

To conclude, AIVET seeks to explore the potential of skills intelligence to capture students' experiences across different Member States of the European Union. Official accounts of this

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topic tend to portray education and training as a linear ladder that individuals can climb. However, constructing this image through indicator-based dashboards often entails overlooking critical aspects of professional knowledge, as well as the strategies adopted by students and graduates. This report addresses these limitations in order to support a more grounded and reliable reflection on skills intelligence.

Methodology

A cross-national sub-section will outline the key features of the research design that provides this fine-grained information. Then, three national sub-sections will describe the sample of interviewees in Barcelona, Sofia, and Vienna.

Table 1 Methodology resume

	Barcelona (n=41)	**Sofia** (n=18)	Vienna (n=14)
Sample level:	tertiary-level VET students and recent graduates.	upper-secondary and post-secondary VET trajectories.	basic-secondary, second-chance, and longitudinal VET pathways.
Dominant institutional setting:	school-based higher VET linked to occupational specialisms.	vocational schools and sector-specific training pathways.	diversified VET ecosystem, including apprenticeships and second-chance provision.
Research focus:	How students and graduates perceive their skills How they develop professional strategies and plans		
Main analytical emphasis:	differentiated modes of professional knowledge.	curriculum relevance and perceived mismatch with labour market demands.	transitions, institutional flexibility, and support across pathways.

Research design

CEDEFOP ‘s (2025) approach to skills intelligence guarantees strong external validity insofar as it draws on large surveys conducted in twenty-seven countries. However, this

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information cannot be fully reliable unless it measures the attitudes and meaningful reasons for individuals' decision to learn the appropriate skills for an occupation.

Social psychologists and sociologists are increasingly developing questionnaires that ask about these subjective interpretations and motivations. At several institutional crossroads such as the end of lower and upper secondary education, it is important to know how frequently a variety of people decide to either leave education and training or to enrol in a higher-level programme. This strand of academic literature retrieves theories that attribute the intergenerational reproduction of class, gender, ethnic and other types of social divides to rational choice, social closure, distinction and deference, exploitation, and other mechanisms.

Since official data do not yet come from this sources, skills intelligence remains blind to individual agency. Although the policy framework assumes that individual learners face an explicit pyramid of educational levels and social positions and make choices to improve or remain in a position accordingly, this data simply count who is in a given position at a given time. On the grounds of the available evidence, it is not plausible to test whether initiatives such as the youth guarantee, the upskilling pathways and individual learning accounts enhance the ambitions of VET students. The eventual functioning of these policies cannot be observed without qualitative data.

Recent studies have long argued that mixed methods are indispensable for understanding individuals' strategies and trajectories (Fu, 2024). This literature shows that transitions are not linear movements from school to work but respond to a wide variety of circumstances. The AIVET project draws on these insights to examine how VET students and recent graduates make key decisions about their education and subsequent careers within different institutional settings. Because the samples in Barcelona, Sofia and Vienna represent different qualification levels and types of provision, the cross-city analysis is not a like-for-like comparison. As Figure 2 shows the interpretive framework for the cross-city comparison.

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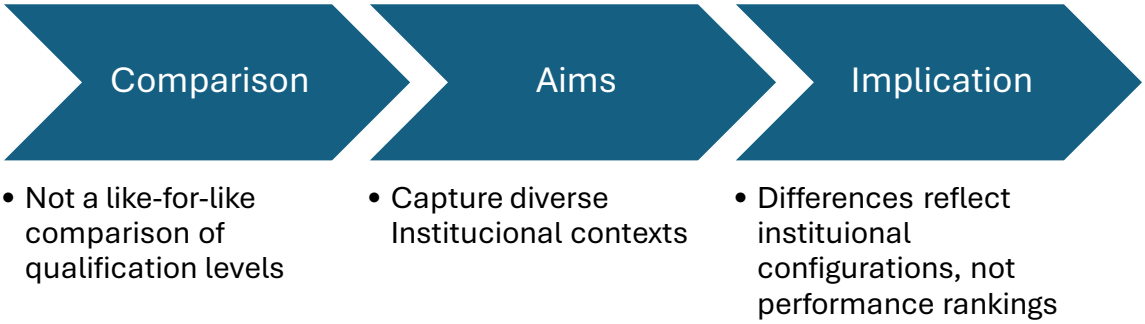


Figure 2 Interpretive framework for the cross-city comparison

This interpretive principle also informs the qualitative research design. Rather than treating interviewees as directly comparable representatives of equivalent qualification levels, the study uses brief narrative interviews to examine how young people's strategies and trajectories are shaped within each institutional context. Unlike life stories, this technique does not reconstruct the main biographical episodes and consolidated memories of interviewees through several interviews and an additional corpus of personal documents. Nevertheless, a short account of a person's trajectory can prompt significant reflection on the dilemmas they faced and the decisions they made a few years earlier (Walther et al., 2015).

For this study, the script was developed within the project AIVET for interviews with students and recent graduates and adapted to Barcelona and Sofia local context (See Annex III). It invited participants to reflect on their education and career prospects. They were encouraged to elaborate freely on their narratives and, where necessary, were prompted to address specific themes. These themes explored participants' educational and occupational trajectories from a biographical perspective, eliciting accounts of school experience, current study choices, work experience, and perceived skill requirements. In doing so, the interviews captured how individuals interpret and strategically navigate their transitions into the labour market. Each theme was supplemented with prompts, which were used when participants' spontaneous responses did not address certain aspects.

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Interviews were conducted either face-to-face or online, depending on participants' availability, and lasted approximately 30 minutes. All participants were informed about the purpose of the study, and anonymity was ensured.

The researchers followed the principles of thematic analysis, which require coding the transcripts of the interviews and afterwards identifying the most relevant themes. According to the normal protocol of this approach, the analysed conceptualised themes as "shared, multi-faceted meaning[s], patterned across at least some of a qualitative dataset" (Braun & Clarke, 2022, p. 296, bracket added for grammatical coherence). In each city, the analysis also added complementary, more descriptive elements such as descriptions of VET programmes or work tasks.

The output were 59 interviews plus 49 transcripts extracted from a dataset of longitudinal interviews of 14 participants in Vienna. Below, different sub-sections outline the samples and the analysis in the three cities.

Sample and analysis (Barcelona)

The AIVET team undertook two actions to build a sample of graduates in Barcelona. The target group were students enrolled in energy, health, hospitality, and IT tertiary-level VET programmes (*Cicles Formatius de Grau Superior*) that had a previous VET credential or had already participated in an internship.

First, the researchers circulated an application through social media, particularly among their personal networks. Second, they asked VET schools to make an appointment with these types of students during their breaks.

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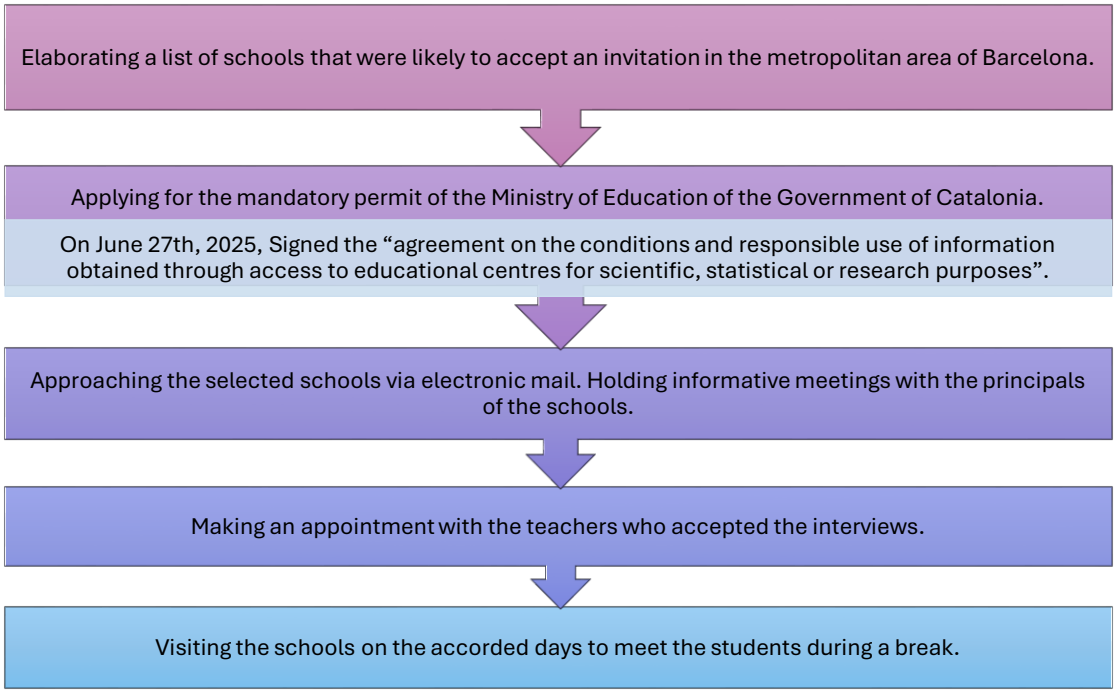


Figure 3 VET schools strategy followed for interviews

A total of 41 semi-structured Interviews were conducted. Figure 4 shows distribution, a slight majority of male (57%) compared to female students (42%). Most of them had been born in Spain. It is important to remind of a feature of the VET institutional system in Spain. Many young people who have immigrated to the country are exposed to several factors of social vulnerability, one of which is non- recognition of their previous academic background (OECD, 2025). For this reason, these potential students are not enrolled in school-based VET programmes but in the short-term vocational training programmes run by the public employment services. Additionally, none of these interviewees commented on a significant risk of social exclusion.

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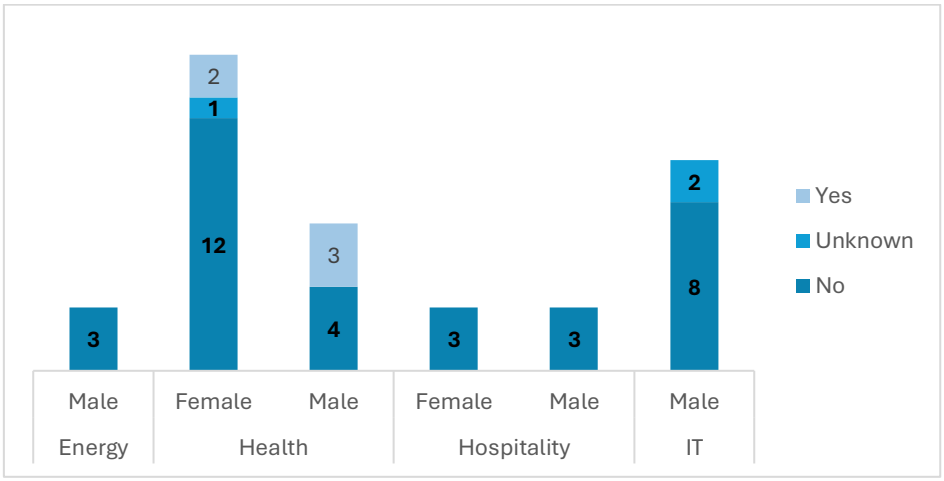


Figure 4 Distribution of Gender by Family Professional Background and Migration Status in Barcelona

In Table 2 The distribution of these youth among the twenty-six occupational specialisms that articulate intermediate and higher VET programmes in Spain. Officially, these are called "*families professionals*." covering fields such as energy, health, hospitality, and information technology. Although these specialisms are formally distinct, some programmes, particularly in the industrial sector, also incorporate substantial IT-related content. Significantly, fifteen interviewees were enrolled in masculinised specialisms related to STEM, and five were studying in the balanced specialism of hospitality. Twenty interviewees were studying to obtain a credential to perform health associate professions, which are massively feminised.

Table 2 Sub-Sample Structure (Barcelona). Gender, Migration Status and VET Schools/Programs & Sectors

Case	Code	Pseudonym	Gender	Migration status	Programme	Occupational specialism
1	10 Health	Laia	Female	No	Tertiary-level VET[1]	Health
2	11 Health	Daniel	Male	No	Tertiary-level VET[1]	Health
3	12 Health	Marta	Female	No	Tertiary-level VET[1]	Health
4	13 Health	Jordi	Male	Yes	Tertiary-level VET[1]	Health
5	68 Energy	Oriol	Male	No	Tertiary-level VET[1]	Energy

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6	69 Energy	Nil	Male	No	Tertiary-level VET[1]	Energy
7	70 Energy	Pol	Male	No	Tertiary-level VET[1]	Energy
8	71 Hospitality	Laura	Female	No	Tertiary-level VET[1]	Hospitality
9	72 Hospitality	Adrià	Male	No	Tertiary-level VET[1]	Hospitality
10	73 Hospitality	Noa	Female	No	Tertiary-level VET[1]	Hospitality
11	74 Hospitality	Alba	Female	No	Tertiary-level VET[1]	Hospitality
12	75 Hospitality	Gerard	Male	No	Tertiary-level VET[1]	Hospitality
13	76 Hospitality	Sergi	Male	No	Tertiary-level VET[1]	Hospitality
14	81 Health	Clara	Female	No	Tertiary-level VET[1]	Health
15	82 Health	Núria	Female	No	Tertiary-level VET[1]	Health
16	83 Health	Anna	Female	No	Tertiary-level VET[1]	Health
17	84 Health	Irene	Female	Unknown	Tertiary-level VET[1]	Health
18	86 Health	Gemma	Female	No	Tertiary-level VET[1]	Health
19	87 Health	Paula	Female	No	Tertiary-level VET[1]	Health
20	88 Health	Sílvia	Female	No	Tertiary-level VET[1]	Health
21	89 Health	Lucía	Female	No	Tertiary-level VET[1]	Health
22	90 Health	Elena	Female	No	Tertiary-level VET[1]	Health
23	91 Health	Carla	Female	No	Tertiary-level VET[1]	Health
24	92 Health	Aina	Female	No	Tertiary-level VET[1]	Health
25	93 Health	Pau	Male	No	Tertiary-level VET[1]	Health
26	94 Health	Marc	Male	No	Tertiary-level VET[1]	Health
27	95 Health	Marina	Female	Yes	Tertiary-level VET[1]	Health

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28	96 Health	Arnau	Male	Yes	Tertiary-level VET[1]	Health
29	97 Health	Judith	Female	Yes	Tertiary-level VET[1]	Health
30	98 IT	Xavi	Male	No	Tertiary-level VET[1]	IT
31	99 IT	Roger	Male	No	Tertiary-level VET[1]	IT
32	100 IT	Enric	Male	No	Tertiary-level VET[1]	IT
33	101 IT	Albert	Male	No	Tertiary-level VET[1]	IT
34	102 IT	Víctor	Male	Unknown	Tertiary-level VET[1]	IT
35	103 IT	Raül	Male	No	Tertiary-level VET[1]	IT
36	104 IT	David	Male	No	Tertiary-level VET[1]	IT
37	105 IT	Carlos	Male	No	Tertiary-level VET[1]	IT
38	106 IT	Hugo	Male	No	Tertiary-level VET[1]	IT
39	107 IT	Daniel	Male	No	Tertiary-level VET[1]	Health
40	108 IT+Health	Jordi	Male	Yes	Tertiary-level VET[1]	Health
41	109 IT	Pere	Male	Unknown	Tertiary-level VET[1]	IT

Note: [1] *Cicles Formatius de Grau Superior*

In Barcelona, the content analysis of the transcripts highlighted the general learning system and individual strategies as the main themes. References to the system discussed the school trajectory, concept of professional learning and social skills of the interviewees and expressed the motivation for choosing the VET programme they were currently studying. The individual strategies emerged from the responses on their future as well as their hopes and wishes.

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Sample and analysis (Sofia)

The Sofia case study is based on qualitative data collected through semi-structured interviews with young people who have recently completed or are currently enrolled in vocational education and training (VET) programmes. The aim of the fieldwork was to capture participants' educational experiences, decision-making processes, skills acquisition, and transitions into the labour market.

The sample was constructed using a purposive and convenience-based approach, relying primarily on the researchers' personal and professional networks. This strategy facilitated access to participants with relevant experience in different VET sectors, while also ensuring diversity in terms of educational pathways and occupational fields. Although the sampling approach does not aim at statistical representativeness, it allows for the inclusion of information-rich cases that reflect a range of experiences within vocational education.

A total of 18 interviews were conducted with participants from various VET-related fields, including health care (e.g. clinical laboratory work), optics, energy and engineering, and technical professions such as heating, ventilation, and air conditioning (HVAC). The participants vary in age and educational status, including both recent graduates and individuals who entered VET after prior educational or work experiences (See Table 3). This diversity makes it possible to capture both more linear educational trajectories and cases involving transitions between different fields or levels of education.

Table 3 Sub-Sample Structure (Sofia). Gender, Migration Status and VET Schools/Programs & Sectors

Case	Pseudonym	Gender	Migration Status*	School/Program Type	Sector
1	Ivan (HVAC technician)	Male	no	Vocational secondary (HVAC)	Energy
2	Maria (HVAC technician)	Female	no	Vocational secondary + college (HVAC)	Energy
3	Georgi (Energy efficiency)	Male	no	VET college (Energy efficiency & renewables)	Energy
4	Nikolay (Energy engineering)	Male	no	University (Energy engineering)	Energy
5	Denitsa (chef pathway)	Female	no	Vocational secondary (hospitality)	Tourism

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6	Kaloyan (high-achiever chef)	Male	no	Vocational secondary (hospitality + competitions)	Tourism
7	Kristiyan (→ marketing)	Male	no	Vocational secondary → university	Tourism
8	Mirela (→ business studies)	Female	no	Vocational secondary → business studies	Tourism
9	Adriana (mixed trajectory)	Female	no	Vocational secondary → mixed trajectory	Tourism
10	Gergana (hospitality → unstable work)	Female	no	Vocational secondary → unstable employment	Tourism
11	Daniela (clinical laboratory)	Female	no	Medical college (clinical laboratory)	Health
12	Iva (optician → optometry)	Female	no	Vocational secondary (optics) → higher education	Health
13	Maya (optician → employment)	Female	no	Vocational secondary (optics) → employment	Health
14	Diana (health VET → constrained pathway)	Female	no	Vocational health pathway → constrained progression	Health
15	Stefan (self-taught + university pathway)	Male	no	General secondary → university (self-driven IT)	IT
16	Boris (VET ICT → creative shift)	Male	no	Vocational ICT → career redirection	IT
17	Todor (VET ICT – weak base)	Male	no	Vocational ICT (outdated training)	IT
18	Deyan (VET ICT – COVID disruption)	Male	no	Vocational ICT (COVID-disrupted training)	IT

The Sofia sub-sample (18 cases) shows a relatively balanced gender distribution, with 9 girls/young women (50%) and 9 boys/young men (50%). Gender differences are sector-specific: energy and IT are male-dominated, health is strongly feminized, and tourism is mixed but slightly female-leaning (See Figure 5).

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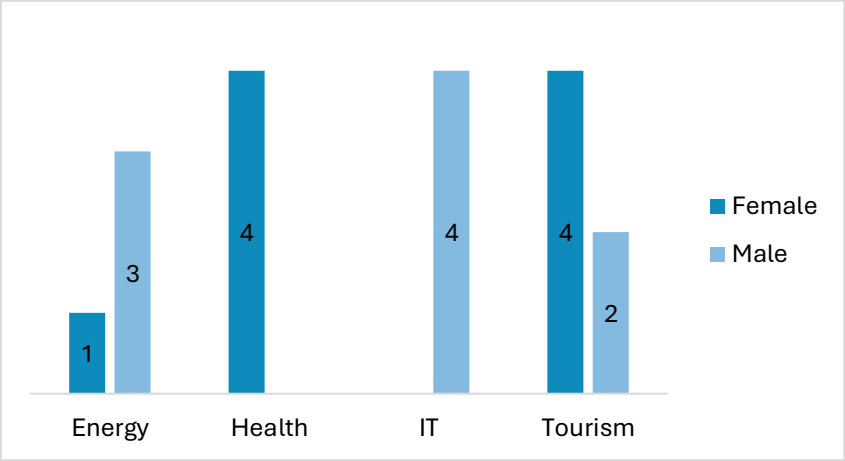


Figure 5 Distribution of Gender by Family Professional Background in Sofia

In addition, the sample includes individuals at distinct stages of their educational and professional trajectories, including those who are still studying, those who combine work and study, and those who have already entered full-time employment. The absence of participants with a migration background in the Sofia sample can be explained by both contextual and methodological factors. First, compared to cities such as Barcelona or Vienna, Sofia has a relatively lower share of young people with migrant backgrounds within the VET system, which limits the available pool of potential participants. Second, the recruitment strategy relied primarily on personal and institutional networks (e.g. schools, teachers, and professional contacts), which tend to reflect majority populations and may not fully reach more marginalized or less visible groups. As a result, while not intentional, the sample reflects the dominant demographic composition of the accessible field rather than the full diversity of the urban population.

Sample and analysis (Vienna)

In the project called “Wege in die Zukunft” (“Pathways to the Future”), members of the Department of Sociology at the University of Vienna conducted longitudinal biographic-narrative (Rosenthal, 1993, 2002) and problem-centred (Witzel, 2000) interviews with

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Viennese youths. The longitudinal interview series started with young people who were attending their last grade of basic lower secondary school in Vienna and aged between 13 and 16 depending on different circumstances that might have slowed their progression through the Austrian school system. The aim of the interviews was to capture different individually significant periods and events in the life course development of upper secondary students. (Flecker et al., 2017)

We saw the material as a rich source of narrative data on life courses of young people that would provide a useful complementarity to the primary qualitative data collected in the other two project partner cities (Barcelona & Sofia). The interviews were deemed useful to the AIVET project because they provided us with a sub-sample of students who went on to VET programs in their upper secondary cycles as well as narrations on school and work experiences. They provided data on educational decision-making processes at crucial junctures of the Austrian schooling system as well as a person's subjective junctures in life. The interviews also offered a perspective on how students perceive career orientation, VET schools and programs, early work life, and preliminary skills acquired at school and/or work.

We narrowed the original sample down to 14 cases and a total of 49 interviews (Ø interview minutes: 135.4) – 5 cases with all five interview waves, 3 interview with four waves (1 who participated in the first 4 waves, 2 who participated in wave 1-3 and wave 5), and 6 cases, added in the fourth wave, who participated in the last two waves. 8 (57%) were girls/young women, 6 (43%) were boys/young men. 10 (71%) had a migration background, 4 (29%) had no migration background. The final sample structure of the sub-set we selected is summarized in Table 4.

The sub-sample was selected based on two factors:

1. The student participated in at least two waves (i.e., for two years)
2. The student was attending a VET school or program for most of the time period they were interviewed in

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Table 4 Sub-Sample Structure (Vienna). Gender and Migration Status

Sub-Sample Case Number	Original Case Number	Pseudonym	Gender	Migration Status*
1	10	Nicole Glisic	Female	yes
2	48	Alexander Stankovic	Male	yes
3	83	Simone Baumgartner	Female	yes
4	89	Lukas Neubrunner	Male	yes
5	95	Carolin Riegler	Female	no
6	111	Lena Fischer	Female	no
7	112	Adarsh Suresh	Male	yes
8	115	Jacqueline Ilic	Female	yes
9	126	Alexandra "Selina" Radu	Female	yes
10	127	Nesrin Nabi	Female	yes
11	131	Benjamin Cerny	Male	no
12	132	Goran Pavlović	Male	yes
13	137	Florian Kofler	Male	no
14	139	Samira Akerele	Female	yes
Girls/Young Women: 8 (57%)		Boys/Young Men: 6 (43%)		
Migration Background: 10 (71%)		No Migration Background: 4 (21%)		

**at least second-generation migrant status through one or both of their parents*

Although we arrived at 14 interviews, the range of VET schools and programs that were captured throughout the 49 interviews analysed was still relatively variegated (cf. table 2). As the table shows, our sub-sample covered most bigger VET school types and programs, such as pre-vocational schools, apprenticeships with vocational schools, VET colleges, business schools, and other intermediate or higher VET schools as well as second chance programs and production schools (now, 'Fit for Training' ~ 'Ausbildungsfit'). However, as secondary data often requires trade-offs, we also had to face the trade-off between gaining rich data on life course developments and not strictly following the sectors the other two project partner cities were analysing (see table 2). Nonetheless, our sub-sample had three young people who were working in hospitality and one working in IT. As some Austrian VET schools and programs are predominantly based on short-term (a few weeks) or long-term (up to two months) internships, an attribution to a sector was not quite applicable.

Table 5 Sub-Sample Structure (Vienna). VET Schools/Programs & Sectors (if applicable) [continued]

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Case	School/Program Type	Waves	Sector
1 (10)	Secondary Business School (Handelsschule) [Intermediate VET]	2,3	n.a.
	Unemployed	5	n.a.
2 (48)	Pre-Vocational School (Polytechnische Schule) [Pre-VET]	2	n.a.
	Apprenticeship + Vocational School (Lehre + Berufsschule) [ticket clerk, call center]	3,4,5	Transportation
3 (83)	Higher Federal Graphic School and Research Institute (Höhere Graphische Bundes-Lehr- und Versuchsanstalt) [Higher VET]	2,3,4,5	Art/Design
4 (89)	Apprenticeship + Vocational School (Lehre + Berufsschule) [cook]	2,3,4	Hospitality
5 (95)	Intermediate VET School for Restaurant Management (Restaurantfachschule)	2,3	Hospitality
	Advanced Training Cycle after graduating (Aufbaulehrgang) [Higher VET]	4,5	Hospitality
6 (111)	Pre-Vocational School (Polytechnische Schule)	2	n.a.
	College for Social Pegagogy (Bildungsanstalt für Sozialpädagogik) [Higher VET]	3,4,5	Social Pedagogy
7 (112)	3-year Technical School for IT (Fachschule für Informationstechnologie) [Intermediate VET, embedded in a Higher VET school]	2,3,5	IT
8 (115)	Production School (Produktionsschule) [Second Chance]	2,3	n.a.
	Unemployed, just about to start a job in gastronomy in Tyrol	4	n.a.
	Apprenticeship + Vocational School (Lehre + Berufsschule) [hospitality (hotel)]	5	Hospitality
9 (126)	Second Chance Program [Lower VET]	4	n.a.
	Apprenticeship + Vocational School (Lehre + Berufsschule) [beautician]	5	Beauty and Cosmetics
10 (127)	Unemployed	4	n.a.
	Secondary School for Economic Professions (Höhere Lehranstalt für wirtschaftliche Berufe) on a three-year cycle (Fachschule) [Intermediate VET, embedded in a higher VET school]	5	n.a.
11 (131)	An Association for Training and Qualification (Qualifikations- und Ausbildungsverein) [Second Chance]	4	n.a.
	Production School (Produktionsschule) [Second Chance]	5	n.a.
12 (132)	Production School (Produktionsschule) [Second Chance]	4	n.a.

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	Apprenticeship + Vocational School (Lehre + Berufsschule) [metalworker]	5	Public Transportation
13 (137)	Second Chance Program (Supra-Company Apprenticeship)	4	n.a.
	Apprenticeship + Vocational School (Lehre + Berufsschule) [office clerk]	5	administrative services
14 (139)	Second Chance Program [Second Chance]	4	n.a.
	Apprenticeship + Vocational School (Lehre + Berufsschule) [industrial clerk]	5	manufacturing

Note: lowercase sector labels indicate sectors young adults usually work in.

Research ethics

Participants signed consent forms confirming the confidentiality of their responses. They were interviewed in safe settings, either at higher VET schools or by videoconference. Participants also consented to the recording of the interviews and were informed of their right to withdraw and request the deletion of the resulting records (see Annex II).

To ensure permanent and irreversible anonymization, the project applied the following measures:

- All direct identifiers (e.g., names, email addresses) were deleted before data analysis.
- Student IDs will be anonymized using a hash function, allowing secure linkage between registry data and survey responses while maintaining privacy.
- Data were analysed in an aggregated form to prevent individual identification.
- Raw data containing personal identifiers were stored separately from anonymized datasets.

The project data were stored and managed using OneDrive for Business, provided by Universitat Autònoma de Barcelona, which ensures compliance with GDPR and institutional data protection policies. The access control system includes the following measures: User Authentication: Access is restricted to authorized users through institutional credentials (Single Sign-On - SSO) with multi-factor authentication (MFA) where applicable: Role-Based Access Control (RBAC): Permissions are assigned based on the user's role in the

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project, ensuring least-privilege access to data. Access Logging and Monitoring: OneDrive automatically logs user activity, including Who accessed the data (authenticated user ID). When the access occurred (timestamp). What actions were performed (viewing, editing, downloading, sharing, or deleting files). Version Control & Audit Trails: OneDrive maintains version history and detailed logs of file modifications and access, allowing for audits and rollback if necessary. Encryption & Secure Storage: Data is encrypted both in transit and at rest, ensuring confidentiality and integrity. Access Revocation & Permissions Management: Access rights can be modified or revoked in real time by project administrators, ensuring data security when user roles change, or access is no longer required.

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Mapping the skills and decisions of VET graduates



Figure 6 Findings of Mapping the skills and decisions of VET graduates.

Analytical Themes in Barcelona

The analysis of the collected evidence reveals a wide range of perspectives. To interpret these findings, it is important to consider the institutional organisation of vocational education and training (VET) in Spain. VET is delivered through different institutional channels. The central and regional Ministries of Education are responsible for school-based upper-secondary and tertiary VET, while public employment services provide vocational training for unemployed and employed workers. Continuous VET is funded and overseen by a foundation involving the government, employers' associations, and trade unions.

The interviews focused on students' learning environments, knowledge, and strategies during their education and transition into employment. The findings therefore highlight the interaction between structural and institutional conditions and students' individual agency.

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In the city, vocational education and training students and graduates elaborated on variable articulations of technical and social skills. Occupational specialisms configured different learning environments in the fields of technology, hospitality, and health.

Technology students described the devices they used in the workplace.

> *I learnt to programme in my previous mechatronics degree. In the apprentice school they specialise you: mechanical or electrical. Mechanical students focus more on pneumatics and hydraulics; electrical ones focus more on Programmable Logic Controllers (PLC). Later, in the workshop, we're divided the same way. (BCN Nil)*

These students argued that they had to catch up with innovation to excel in their profession.

> *When I got my initial upper-secondary VET credential, we covered both analogue and digital electronics. Later, with robotics, Programmable Logic Controllers (PLC) come into play. I went from programming very basic microprocessors to Siemens PLCs, which are completely different. In the past, vocational training prepared you for many roles—electrician, electronics technician, and so on. Now higher vocational programs are much more specialized. That is good, but in Spain it's still important to be versatile and know a bit about everything (…) At Mercadona, some jobs are disappearing, but others are being created. The traditional warehouse worker role is fading, but technical positions are emerging. We live in a technological world. (BCN Raül)*

Such challenge raised concern with ongoing changes in the labour market.

> *Not entirely. AI is a very powerful tool and will replace certain tasks, but it cannot replace human adaptability. You can have AI that helps you program or translate, but there always needs to be someone who can verify whether the result is correct. The same applies in industry: AI can help with programming, but then you have to go to the factory, adapt to real conditions, and solve unforeseen problems. Only a person can do that. (BCN Xavi)*

> *The job market is unbalanced. They ask for many requirements, but the salary doesn't match. There are maintenance job offers with basic pay, while in large companies like the metro, salaries are more decent and there are opportunities for advancement. Consulting firms tend to pay more over time, but the demands are high and sometimes don't match what is actually done in the job. (BCN Jordi)*

Energy students were also proud to become experts at quickly solving breakdowns.

> *The program is about the integrated water cycle. It's not just about bringing water to households, but the entire process: where the water is sourced, how it's treated, how it's distributed, what happens after it's used, and how it's purified before being returned to the environment. We are involved in a specific part of this process (…) I carry out operator tasks: repairing breakdowns, replacing pipes, changing meters, taking readings, working on public*

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roads… When a pipe bursts, for example, we have to open it up, repair it, and leave everything in proper condition so the service can continue. It's a job similar to a plumber's, but outdoors, on the street, before the water enters homes. (BCN Pol)

Yes, with gas you have to be very careful, but I'm happy (…) We repair boilers, carry out maintenance, provide handyman services, work on appliances, and do gas inspections (…) The more visits you do, the more you earn. (BCN Oriol)

Many technology students argued that a balance of technical and social skills was indispensable to perform in their field. One of them highlighted the ability to focus on the principal issues and Communication was also crucial.

Interviewer: What do you think is needed to succeed in your profession?
Respondent: First, always stay alert. You can never assume that everything is completely secure. Second, keep learning continuously. This is a field that changes all the time: new attacks, new tools, new vulnerabilities appear. It's also useful to understand how attacks work—not to cause harm, but to know how to defend yourself. (BCN David)

Yes, knowing how to communicate what you find. If you detect a problem, you have to know how to explain it well to your superiors. It's not very useful to say you've spent months investigating. What matters is to say: "I've found this vulnerability and we should fix it this way." That shows you know what you're doing. (BCN David)

It's teamwork, although each person is usually working on a different machine or part. If someone needs help, we all support each other. Each machine has several parts: automation (Programmable Logic Controllers), electrical (control panels), mechanical assembly, and wiring. (BCN Albert)

Some mentioned work readiness and individual effort.

Interviewer: Why do you think you were promoted? Respondent: Because I've always taken work very seriously. At school I was more careless, but not at work. If something was explained to me, I learned it quickly and I've always tried to do it well. (BCN Hugo)

Interviewer: What do you value most in a worker? Respondent: Motivation. I prefer someone without formal training but with drive over someone with many qualifications but no attitude. I have four higher vocational diplomas and the organization only asks for one. Here, each mechanic knows more about one area than another, and we're not working at NASA. (BCN Raül)

Although most technology students basically focused on the strict scope of their professional activity, interestingly a few of them mentioned personal development and the contribution of such activity to the common good.

We work for money, but I also seek personal growth. I don't feel I've failed, but of everything I could have had in Cuba, there are things here that will never come. I had a master's place and

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other opportunities there, but I turned them down to come here. Now I try to grow professionally and see how far I can go. (BCN Jordi)

At first, I wasn't very sure what to do. Talking with my parents and looking at options, I discovered the water sector. I thought that water is an essential element for humans, that it will always be needed and that, therefore, there will always be jobs. It's not something that can be replaced. It also has an interesting technical side: physics, processes, water treatment… all of that caught my attention. (BCN Pol)

According to the AIVET interviewees in the hospitality sector, vocational education faced tensions with certain companies that too often overlooked the importance of professional expertise. Thus, a student compared her newly acquired skills to the poor standards she had previously endured in a restaurant.

I had a very tough experience in a restaurant business that relied on a head chef who didn't know how to manage a kitchen: there was no cost control, no costing sheets, no technical sheets, and no proper hygiene. Everything was chaotic. However, especially I learnt how to manage stress and to clearly see how a kitchen should not be run. That restaurant eventually ended up closing. (BCN Laura)

In this professional field, multitasking was a crucial asset. In fact, cooking students coincided that their expertise was not only restricted to working in a kitchen.

The intermediate vocational program is very practical: culinary techniques, hygiene, preservation. The higher vocational program is much more theoretical and focused on management: costs, costing sheets, menu engineering, accounting, team organization. You're trained not only to cook, but also to manage a restaurant or take on positions of responsibility. In that restaurant, due to seasonal needs, they started assigning me to desserts, and when they saw I could handle it, they began to give me more responsibilities in the kitchen. (BCN Laura)

I was interested in understanding costing sheets, pricing, payroll—why certain salaries can be paid and not others—and how a hotel recovers its investment. All of this made me realize the importance of management. (BCN Adrià)

Many of these students aligned personal development with entrepreneurship. This was a crucial distinction to compare the importance of cooking and serving customers in the intermediate programme and the priority of management in the tertiary-level programme. One of them was aware that he could manage in many restaurants but expected to upgrade his credentials to enter the top ranks of the profession.

I want to keep studying, not stop at the intermediate level. It was recommended to me, and I want to aim for more responsibility—manage, be in charge, be a head chef, earn more. In the higher program you learn to run a kitchen: coordination, giving instructions, managing time.

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There's also a lot of theory: administration, laws, business creation, economic management. (BCN Noa)

Not just for the qualification, but for the contacts and to open doors. The higher program gives access to more ambitious placements, especially in fine-dining and Michelin-starred restaurants (...) I'd like to do internships in high-end restaurants because it's the best way to get into them. Sending CVs doesn't usually work; if you get in through an internship and show motivation and interest, they might recommend or hire you (...) I've been told how they work: a lot of planning, dish testing that can take years, very large teams, protected recipe books, and a culture very different from conventional kitchens. (BCN Adrià)

These students had become aware of the need to interpret implicit aspects of their workplace, such as hierarchy. In addition, they noted that professional performance required coping with diverse customers and types of workplaces.

If everyone had the same authority, things would be discussed as a group and decisions would be made by consensus. But if there is an established hierarchy, even if you're new, you have to follow those who have been there longer—even if they aren't the supervisor. You're not there to invent anything; you're there to work and learn. If you do it well, you'll become a manager; if not, they'll support you. (BCN Sergi)

You need to understand that not all clients are the same. Knowing the client—their preferences, habits, and how they react—is the most important thing. (BCN Alba)

(...) the environment changes a lot. For example, at events you have to prepare hundreds of appetizers and cannelloni, which means several hours of production. It also involves very long shifts, ten to twelve hours, but at least it's better paid. At school I learned the basics, but at work you learn much more—things that aren't taught in class because you're forced to figure them out on your own. (...) you gain more skills and responsibility. Everything has to be done better and faster because it's for paying clients. You can really see the difference, although at school they also prepare us well and placements help. (BCN Gerard)

The inevitable fatigue and stress had become an issue for a few students in the hospitality sector.

What worries me most is burning out from working in the kitchen—because of stress, difficult coworkers, or not liking the job and not feeling comfortable. If that happens, I'd look for something else that motivates me. Interviewer: Do they talk in training about how to prevent burnout? Respondent: No, at least not in my case. It's hard to prevent; it all depends on where you work and your coworkers. If the environment is good, you work better; if not, you burn out more quickly. Coworkers have a big influence. (BCN Gerard)

In Barcelona, several VET programmes for associate health professionals are related to academic knowledge. Health services students understood that the core of their expertise required performing in technical skills as well as caring for patients.

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> *I'm used to using information to pass exams, not to internalize it. Now, since I really like what we do, I do internalize it. The course is about sample processing, from when they're taken from the patient until a clinician can review them. It has many branches and career paths, such as cytotechnology—which is a specialization for analysing cytology samples from the whole body and making pre-diagnoses—or assisting in autopsies. (BCN Clara)*

> *So you might think it's very calm, but you go there, say "good afternoon," and suddenly someone comes in with pain—pain because their dentures are loose and falling out. Then the care you have to provide can become quite complex, right? (…) I'm always rushed because we might get twenty patients in an afternoon. With hygiene care, for example, there was a protocol to follow, specific steps. But this woman had always done it her own way, and since she'd worked there for many years, she resisted changing. You tried to explain: if these guidelines exist, it's because previous methods weren't working. But she would say, "it's always been done this way, I've worked here for years," and wouldn't change. I understand it, but it adds an extra layer of stress. (BCN Anna)*

To meet these demands, one of them defined a concept of "therapeutic distance."

> *And also. This is something that has to be worked on, including maintaining a certain therapeutic distance, because in the end, if you get too close, it affects you too much, and that will eventually impact your work… so yes, you have to address it. (BCN Sílvia)*

A recent graduate summarised in a few words the set of social skills that caring professions required. Besides catering for old people in a care home, she pointed out that teamwork might become an issue.

> *I worked night shifts in a care home; I didn't get hired by hospitals. It depended on which coworker you had—there was one nobody liked. I always recommend working nights in a care home with few residents. (BCN Marc)*

In accordance with these professional standards, empathy with people in need and the feeling to contribute to their well-being fostered the self-image of some students of health and social services programmes.

> *Working in the social sector, especially in a disadvantaged neighbourhood, was very fulfilling for me. There are many young people who need support to move away from certain habits, such as substance use or spending the whole day on the streets. It motivated me to see how, after working with them, they began to change and adopt healthier habits. This summer I worked as a social integration worker in a project with young migrants, and it was an incredible experience. Recently, I ran into a group of girls who are learning Catalan, and I really enjoyed being able to speak with them in the Catalan I taught them. (BCN Pau)*

> *Above all, empathy, because you're working with people in disadvantaged situations and you can't approach them from the perspective of "I have everything easy, so it should be the same for you." Patience as well. And, even though it's not exactly a personal trait, knowing how to find resources: I think that as a social integration worker, a fundamental aspect is connecting people*

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> *with support networks. It's one thing to say "you can find help," and another to say "look, these specific resources are available." The second option is much better, and being able to access and share those resources is very important. (BCN Elena)*

Interestingly, an adult student had realised that her previous experience as a seller was helpful in catering for patients. Thus, the particular balance of technical and social skills offered new opportunities in the health sector.

> *Not everything you learn can be practiced, but they do give you tools for dealing with the public. I have the advantage of having worked 20 years with customers, so before starting my placement I was already going to Hospital del Mar to help ALS patients with video calls. That was a turning point, because I was putting into practice in real life what I had been taught. (BCN Paula)*

In the same way as students addressed fatigue in the hospitality sector, the burn-out syndrome was a concern in the health sector. While some recent graduates managed quite well, others left the occupation for this reason.

> *So, I had always considered nursing—nursing or medicine (...) I worked for that whole year, and I decided no—not because I didn't like the job itself, but because of the working conditions. I realized that in the future, with what I know, at forty or fifty, with children, I don't see myself doing it. It's an extremely, extremely physically demanding job—very rewarding, but also extremely exhausting. I just don't see myself doing it long-term, given the conditions. So for these reasons, I decided to try social integration. (BCN Sílvia)*

VET Students Pathways in Barcelona

The interviews with students and recent graduates provide qualitative evidence on the educational and occupational pathways associated with vocational education and training (VET) in Barcelona. The accounts offer insights into how participants describe their previous educational experiences, their reasons for choosing VET, and their expectations regarding future education and employment.

The institutional organisation of VET provides an important context for interpreting these accounts. As discussed above, students who do not obtain the qualifications required to continue through the academic pathway may access different forms of vocational education

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and training, including short-term programmes provided through public employment services. The interviews considered here, however, focus primarily on students enrolled in school-based VET programmes. Their accounts therefore provide evidence on a particular segment of the VET system and should not be taken as representative of all young people who enter vocational training. The interviews include different types of educational trajectories. Some participants described previous experiences of interruption, uncertainty, or difficulty in continuing along an academic pathway. For example, one participant reported leaving university after finding that the programme did not correspond to his expectations regarding the practical orientation of learning.

> *I ended up finishing my secondary education diploma (...) Then I went to do my military service, since I still had to complete it at the time. After that, I was unsure—whether to study or not... I went to university, but it didn't really work out (...) University didn't suit me very much. Maybe I was expecting something more practical, not so much theory, algebra, and things like that. (BCN Oriol).*

Another participant described a transition from the academic pathway to intermediate VET following difficulties associated with her personal circumstances and her interest in healthcare.

> *At first I wanted to do the academic track, but I was in a very delicate health situation because I had anorexia nervosa, and I was constantly going in and out of hospitals. So, from the hospital they told me it would be better not to do it. Of course, I wanted to study medicine, and I was left feeling stuck—I couldn't go ahead with it. I felt very frustrated, but they advised me to do a vocational intermediate qualification. I was interested in healthcare, and that path suited me much better academically, because otherwise I became extremely stressed. (BCN Sílvia).*

However, most interviewees told quite different stories. A few recalled how they had learnt and recovered from some troubles in previous moments of their life, while others declared to elaborate their future plans quite differently. A couple of them told the story of their own biographical learning.

> *At first I never wanted to be a waiter—I didn't like it. But after trying eight or nine different jobs, the last one was in hospitality, and my family has always been involved in this sector. I liked it from the first year, and I've been working in it for five years now. (BCN Sergi)*

> *It wasn't because studying was difficult. I just didn't apply myself. At that time, I wasn't focused. I was living with my parents, I had no worries, and I didn't really care about anything. Over the years, that changes: when you have a family, a partner, children... you become more focused and you no longer want to waste your time. (BCN Hugo)*

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The interviews also include accounts in which VET was considered in relation to employment and subsequent educational progression. One participant described a continuous trajectory from an intermediate qualification in electricity to dual training in industrial mechatronics and subsequent employment in maintenance. He later returned to education to obtain a higher vocational qualification.

> *Well, when I finished compulsory secondary education, I enrolled in an intermediate vocational qualification in electricity. I studied for two years with the idea of becoming an electrician. I didn't go straight into work; I kept studying and joined SEAT's apprenticeship school, where I spent three years in dual training in industrial mechatronics. Since then, after finishing, I've been working in maintenance for ten years. Now, at present, I want to progress a bit within the company, and they've told me that I need a higher vocational qualification. That's why I'm now back at school studying industrial mechatronics. (BCN Nil)*

> *Although I had the option of going directly into a university degree, I decided to first complete a higher vocational qualification. I chose this because I wanted a qualification that would allow me to start working as soon as possible and advance professionally. I thought that by doing the two-year higher vocational programme, I would be able to enter the workforce sooner. In addition, some credits would be recognised towards the university degree I am currently studying. (BCN Clara)*

But the reasons for preferring these courses are much wider than seeking for a job, even more, quite often this instrumental strategy only makes sense when someone identifies certain vocational calling. So general attitudes as helping people or refusing paperwork can deliver crucial guidance to some young people.

> *I've always liked helping people and being around others. I've always been very drawn to the health field, so it was like: okay, I'll go this way. Interviewer: So it was more a personal motivation, not so much related to problems at school or with teachers. Respondent: No, not at all—it wasn't academic failure or anything like that. I've always been a good student with good grades. I've never had any problems. Well, maybe a bit with maths, but nothing major. (BCN Paula)*

> *Then I started a higher vocational qualification in Advertising Graphics, but I dropped out halfway through (...) I was very interested in the artistic side—drawing, creating... and that's why I chose that path. But I realised that working all day on a computer didn't suit me, and after a few months I left (...) In contrast, I saw in cooking a connection with the artistic side, but also clearer job prospects. (BCN Laura)*

The perspectives of students who navigated the institutional system in a more improvised way further enrich the landscape of motivations for choosing vocational programmes in Barcelona. Although these trajectories often begin with ambivalent or negative school

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experiences, many ultimately converge on mainstream occupational preferences and develop a genuine interest in specific economic sectors.

> *Okay, I'll start from the beginning. I completed the science and technology track in upper secondary education here, although I found it quite difficult. I didn't see myself as capable of pursuing a university degree because I don't consider myself a very intelligent person, so I didn't feel encouraged to go to university. I looked for a vocational programme that appealed to me, something I felt was really mine. I tried to get into 3D animation, but I felt unmotivated and wasn't very attentive to the application deadlines. By the time I tried to enrol, it was too late and there were no places left. I saw on a website that there were still places available in IT systems and telecommunications here in M***. At first, I wasn't very keen because it seemed like a very dense subject, almost at university level. But I didn't want to lose a year, so I enrolled straight away. (BCN Pere)*

> *Yes, it's true that at the beginning it was a bit difficult because I didn't understand the language at all, but after three to six months I started to understand more. English and maths were very different, more advanced. I studied little by little and eventually obtained my compulsory secondary education certificate. Then I finished the final year and applied for the programme and started the intermediate vocational qualification. (BCN Alba)*

Such complex configuration of reasons for choosing vocational education crystallises in a set of attitudes towards the future. Planning and wishing certain states drive students to figure out what they want to do within some years. Both actions oscillate between adaptive and forward-looking perspectives.

Planning oscillates between stop-and-see perspectives and careful goal setting. The former relies on cautious considerations about the current studies and the prospects of future employment. Some participants expressed relatively open-ended expectations, and other participants referred to perceived labour-market opportunities when discussing their expectations.

> *I see myself being a good waiter. For now, I don't know—I'll decide when the time comes. Interviewer: Have you thought about studying anything else? Respondent: For now, I'm not sure—I don't think so. (BCN Sergi)*

> *Teachers used to tell us that the sector would have strong demand, and that's motivating. When you look into it yourself, you see that it has a future, but also that there's high demand and not enough qualified people. Companies are looking for technical profiles, but if you don't know how to manage yourself, it becomes a problem. (BCN Víctor)*

Some participants identified future objectives but provided less detail regarding how these would be achieved.

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> *It's a sector with strong demand and a good starting point to discover what you really like within the industry. (BCN Albert)*

> *To secure a permanent position and continue training. Possibly to work as an educational counsellor or in special educational needs. (BCN Clara)*

Others articulated both relatively specific objectives and possible pathways towards achieving them.

> *In the short term, to complete the higher vocational qualification and start working, moving through different kitchens, and learning various ways of working. I would like to get to know traditional Catalan cuisine, but also creative, fusion, and international cuisines. To travel, work abroad, and learn from other culinary cultures. In the long term, perhaps to open my own restaurant or move into management or teaching. It is not a fixed decision. (BCN Laura)*

Although the hopes and aspirations they do not map neatly onto the threefold typology of planning modes, two broad patterns can be distinguished. One is characterised by tentative intentions, as students were still deliberating their next steps; the other reflects more clearly defined aspirations, expressed by those who reported having reached firm decisions.

Tentative aspirations appeared across several sectors.

> *I am 20 years old and I'm currently studying a higher vocational qualification in culinary management. Two years ago, I completed an intermediate programme, which lasts two years, and the higher level is another two years. Before going into cooking, I studied mechanics for one year because I wasn't sure what to do and that field caught my attention. I liked it, but later I decided to switch, and I've now spent three years focused on cooking. For now, I enjoy it and plan to continue. In the future, I'd like to live abroad, in Switzerland or the Netherlands, and look for work there for a few years. (BCN Gerard)*

> *Interviewer: Why didn't you study medicine directly? Respondent: My grades weren't high enough. I finished upper secondary education with an average of 9.28, and I got 11.9 in the university entrance exams. I tried to improve my score in September and reached 11.9 again. This September I retook the exams and increased it to 12. The lowest entry grade for medicine is 12.4, so I'm short by four tenths. I wanted to use vocational training as a stepping stone, but I don't think I'll reach the required score, because we were told that this programme is designed to train good technicians, not to achieve high grades. Learning and getting high grades are different, and I've realised that during this programme. (BCN Clara)*

> *But for me, that's why I want to study nursing and medicine—because I really love topics like biology and anatomy and all that. What matters even more to me, though, is working with people. I also really enjoy the diagnostic side—I find it very interesting—but interacting with people, caring for them, looking after them when they're unwell… that's something I truly like. (BCN Núria)*

More clearly defined ones were present in all the occupational specialisms considered.

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Interviewer: You finished compulsory secondary education at 15, and everything went well? Respondent: Yes, yes, without any problems. Interviewer: Then you enrolled in the intermediate vocational programme and completed it in two years. Respondent: Exactly. My brother is an electrician, and I've always liked opening up devices and tinkering with them. I knew I wanted to do something related to maintenance. The intermediate programme gives you qualifications in electricity, and that's the direction I wanted to take. (BCN Nil)

I'd like to have my own restaurant in fifteen or twenty years. I know it's very difficult, that the investment is very high, and that many businesses close in the first few years. But the higher vocational programme is helping me understand that you need market research, planning, and management—not just good cooking. (BCN Adrià)

I was sure I didn't want to do anything related to physics, so I ruled out radiology. I hesitated between anatomy and laboratory work, but what attracted me most were necropsies and pathophysiology—that is, understanding the human body and diseases. Of the two, the one that best matched my interests was pathology. Now that I've completed the first year, I would definitely choose this programme again. Interviewer: Are you thinking about continuing your studies and moving on directly to medicine? Respondent: Yes, that's the plan. I'm looking at the Autonomous University of Barcelona, and that's the idea. (BCN Gemma)

The interviews also point to differences across occupational fields in the ways participants describe their educational choices and future plans. In health-related programmes, participants frequently referred to academic interests, such as biology and anatomy, as well as to motivations related to care and working with others. In hospitality, participants described their choices in relation to practical experience, personal interests, and the possibility of developing broader occupational skills, including cooking, management, and entrepreneurship. In technical fields, participants more often referred to specific occupational qualifications, employment opportunities, and progression within a particular professional field.

These sectoral differences are also reflected in participants' orientations towards further education and employment. Some participants in health-related programmes described pathways that included further progression towards university studies, while participants in technical programmes more frequently referred to occupational progression and the acquisition of additional qualifications. In hospitality, participants described a combination of immediate employment objectives and longer-term aspirations, including mobility, management, or self-employment.

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These patterns should not be understood as uniform characteristics of the sectors or of their students. Rather, they indicate that participants' educational and occupational trajectories are shaped by different combinations of interests, previous experiences, perceived opportunities, and future expectations. The Barcelona interviews therefore reveal both substantial variation within the VET student population and some differences in how educational and occupational pathways are described across fields of study.

Analytical Themes in Sofia

VET Learning Environments in Sofia

The narratives of VET students and graduates in Sofia reveal a highly differentiated picture of learning environments, shaped primarily by sectoral variation rather than by a coherent institutional logic. Across the interviews, participants describe learning environments that range from relatively structured and demanding (health), through technically oriented but uneven (energy), to fragmented and weakly institutionalized (tourism and IT).

A central theme across sectors is the gap between formal education and practical requirements, although its intensity and consequences vary considerably. In the energy sector, students generally describe their learning environments as meaningful and oriented towards real-world applications. Practical training, workshops, and the presence of teachers with industry experience contributed to a feeling that school-based learning had relevance for future employment. At the same time, several participants pointed to limitations in terms of outdated equipment and insufficient exposure to contemporary technologies, suggesting that even in more technically structured environments, institutional resources lag behind labour market developments. One participant described the importance of practice-based learning, but also highlighted the limitations of available resources:

> *"We were learning useful things, like how systems work in theory, but when it came to practice, it was too short and sometimes felt outdated – the equipment we used didn't really match what you see in actual workplaces." (SOF Ivan)*

Similarly, another interviewee pointed to the role of teachers with industry experience:

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> *"The teachers are engineers from the industry – it's a different environment. Much more professional." (SOF Georgi)*

In contrast, the health sector is characterized by highly structured and demanding learning environments, marked by intensive schedules, strong disciplinary expectations, and a clear professional orientation. Students emphasized the importance of precision, responsibility, and theoretical knowledge, reflecting the regulated nature of health-related professions. At the same time, however, narratives point to significant shortcomings in practical training. Internships were often described as observational rather than participatory, and some practical exercises relied on outdated methods or simulations. This creates a tension between the formal rigor of the training and the limited opportunities to get hands-on experience in real working conditions. One interviewee described the intensity and structure of the programme:

> *"Everything is oral and in person – there's no online possibility; you have to be there for every exam. During the exam period it can be very intense, sometimes you have exams every two days, and each one requires preparation across multiple subjects. From 8 in the morning until 5 in the afternoon, you are constantly in classes, exercises, or exams, with very little time to rest. It feels like you are always under pressure, because you have to be focused all the time and you know that even a small mistake can matter in this field." (SOF Daniela)*

At the same time, the same participant emphasized the limits of practical training:

> *"We only had one demonstration of taking blood – on a dummy arm, not on a real person. After that, during the internship, you mostly just observe and don't actually practice. A lot of what we studied felt disconnected from real work – I would say 90% of it is not something you actually use in practice." (SOF Daniela)*

Another participant highlighted problems with outdated curricula:

> *"The curriculum is outdated… we are learning things from 50 years ago. At one point we were studying methods that even the teachers admitted are no longer used – they would say, 'this is the old way,' and we would just laugh because we knew we wouldn't see it in real practice."(SOF Ivan)*

The tourism sector presents a markedly different picture, with learning environments described as less structured and often inconsistent in quality. While some students reported positive experiences with practical training, competitions, or supportive teachers, others emphasized the limited duration and effectiveness of internships, as well as a lack of clear connection between school curricula and actual workplace demands. The variability of

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experiences suggests that learning environments in tourism are highly dependent on individual schools, teachers, and employers, rather than being systematically organized. As a result, students often enter the labour market with uneven preparation and rely on workplace learning to compensate for gaps in their training. As one participant noted about internships:

> *"Students come for ten days and learn nothing… the practice is insufficient." (SOF Denitsa)*

Another interviewee described how learning was largely dependent on workplace experience:

> *"You actually learn the most on the job – when you start working, that's when you really understand how things are done. School gives you a foundation, but it's quite basic… the real learning happens in the kitchen or in the hotel, when you're dealing with real situations and real clients." (SOF Mirela)*

The IT sector stands out as the weakliest institutionalized learning environment, where formal education plays a limited role in skill acquisition. Students consistently highlighted the need for self-directed learning, emphasizing that school curricula provide only a basic foundation that must be supplemented through individual effort, online resources, and participation in informal networks such as hackathons or peer communities. At the same time, participants pointed to outdated teaching content, insufficiently qualified or up-to-date teachers, and a lack of alignment with industry practices. In this context, learning is largely externalized from formal institutions, and successful transitions depend heavily on individual motivation and initiative rather than on the quality of school-based training. One interviewee explicitly emphasized the necessity of self-learning:

> *"You always have to prepare yourself – what you learn in school is not enough. For example, if you want to learn a new programming language or framework, you just start on your own – watching videos, doing small projects, asking people online. School gives you the basics, but everything beyond that depends on you." (SOF Stefan)*

Another participant pointed to outdated infrastructure and weak practical training:

> *"The computers were very outdated… nothing like current technologies." (SOF Boris)*

A dimension cutting across all four sectoral configurations — and one the formal curriculum addresses even more unevenly than technical content — concerns social and transferable skills. Strikingly, these competences are foregrounded not only in the obviously people-facing sectors but also in the most technically framed ones. In health, precision is described

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as inseparable from responsibility for the patient — as one clinical-laboratory graduate put it, the smallest inaccuracy *"can mean someone gets the wrong diagnosis" — and the same respondent stressed that "communicating with people turns out to be very important" (SOF Daniela)*. In tourism, participants foreground teamwork over individual competence: "at work you can't be on your own," one explained, "*if you break away from the team and do as you please, it always goes wrong" (SOF Denitsa).*

Even in energy, graduates single out client communication and coordination across crews as central to the job — one described the decisive skill as "*working with clients: explaining why the routing goes this way," adding that "this is something school cannot simulate" (SOF Ivan),* while another concluded that *"working with people is the hardest engineering skill" (SOF Georgi).* In IT, the relevant transferable capacity is self-direction: with formal provision weakest, students must drive their own continuous learning, and client-orientation and delegation become central only as they progress toward more senior roles. Across sectors, then, social, and transferable skills follow the same logic as technical ones — they are largely externalized from the classroom to the workplace, and several participants explicitly call for soft-skills training to be built into VET *(SOF Ivan and Georgi).* This is consequential for the report's wider argument: the official focus on technical "matches and gaps" overlooks precisely the relational, attitudinal, and self-organizing competences that graduates themselves identify as decisive for the transition to work.

Taken together, these narratives indicate that VET learning environments in Sofia are not experienced as a unified system but rather as sector-specific configurations with varying degrees of institutional strength and relevance. While some sectors, particularly health and energy, offer more structured and professionally oriented training, others, such as tourism and IT, rely more heavily on informal learning and individual agency. This fragmentation has important implications for subsequent transitions into the labour market, as students' preparedness and opportunities are shaped less by a standardized system and more by the specific characteristics of their chosen field.

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Decision Patterns and Educational Choices

The narratives of VET students and graduates in Sofia reveal that educational and career decisions are shaped by a combination of early orientation, pragmatic considerations, and often trial-and-error processes, rather than by clearly structured institutional pathways. Compared to Vienna, where decision-making is more strongly embedded in formal tracking systems and influenced by migration-related dynamics, the Sofia case is characterized by greater fluidity and individualization of choices, as well as by the absence of a strong institutional steering mechanism.

A first important pattern concerns early but not always fully informed decisions, particularly in technical fields such as energy. Several participants reported choosing their specialization already at the transition to upper secondary education, often driven by interest in technology or influenced by family background. These early decisions, however, were not necessarily based on a full understanding of the profession but rather on general orientations toward certain types of work. For instance, one participant described a clear early interest in the field:

> *"From 8th grade I knew I wanted to study something related to energy." (SOF Nikolay)*

At the same time, others emphasized that their understanding of the field developed only later, during their studies or through practical experience.

A second pattern relates to the role of family influence and social environment, which, while present, appears less deterministic than in more structured systems. Family members often provided general encouragement or orientation toward "having a profession," but rarely dictated specific choices. In some cases, parental occupations indirectly shaped interests, particularly in technical fields. As one interviewee noted:

> *"My father always said: 'Energy drives the world.' I think I inherited my interest in technology from him." (SOF Nikolay)*

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At the same time, other participants emphasized that their decisions were largely self-driven, reflecting a more individualized decision-making process.

A third and particularly prominent pattern in the Sofia case is the prevalence of non-linear and exploratory trajectories, especially in sectors such as tourism and IT. Many participants described reconsidering their initial choices, switching fields, or pursuing additional education after gaining work experience. This reflects a decision-making logic based on experimentation and adjustment, rather than on fixed long-term planning. One participant from the IT sector described a shift away from their original training:

> *"After I finished, I realized this wasn't what I wanted… at the beginning it seemed like a good choice, but during the training I started to lose interest. When I saw what the real work involves, I understood that I don't see myself in this field. So, I decided to move into something completely different and try another direction where I feel more motivated" (SOF Todor)*

Similarly, in tourism, participants often entered the field without strong commitment and later reconsidered their trajectories based on working conditions and opportunities.

Gender also plays a significant role in shaping decision patterns, contributing to clear sectoral segmentation. Technical fields such as energy and IT are predominantly chosen by male students, often linked to interests in machines, technology, or computing. In contrast, health-related professions are almost exclusively chosen by female participants, reflecting broader societal norms regarding care-oriented work. Tourism occupies an intermediate position but still shows a tendency toward feminization. The gendered nature of these choices is not always explicitly articulated by participants but emerges clearly from the distribution of cases and the narratives themselves. In some instances, however, participants directly reflected on gender dynamics, particularly when entering non-traditional fields. For example, one female participant in a technical field noted:

> *"At first it was strange because there were very few girls… but later I proved that I could do the job just as well." (SOF Maria)*

Finally, the Sofia data highlights the importance of opportunity structures and chance encounters in shaping decisions, particularly in less institutionalized sectors such as IT. Access to internships, jobs, or further education often depended on informal networks,

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personal initiative, or coincidental opportunities rather than on structured guidance systems. One participant described how entering the labour market was linked to informal networking:

> *"I met people at hackathons, talked to them, showed what I can do… and that's how I got the chance to start working. It didn't come through school or any formal channel – it happened because I was active, participated in events, and made connections with people who later offered me an opportunity." (SOF Stefan)*

Taken together, decision patterns in Sofia are characterized by a combination of early orientation, weak institutional guidance, and strong elements of experimentation and individual agency. While some sectors, particularly energy and health, show more stable and linear decision trajectories, others, such as tourism and IT, are marked by fluid and often uncertain pathways. This diversity of decision-making logics reflects the broader fragmentation of the VET system and has important implications for subsequent school-to-work transitions.

Institutional support

The narratives of VET students and graduates in Sofia suggest that institutional support plays a limited and uneven role in shaping educational and career decisions. Unlike more structured systems, where schools, counsellors, and formal guidance mechanisms actively steer students' trajectories, the Sofia case is characterized by weakly institutionalized support structures, with significant variation across sectors and schools. As a result, decision-making processes are often individualized and only partially supported by formal institutions.

A recurring theme across interviews is the limited role of career guidance within schools. While some participants reported receiving basic information about possible career paths, this guidance was often described as general and insufficient for making informed decisions. In many cases, students relied on their own initiative or external sources of information rather than structured counselling processes. As one participant recalled:

> *"In 8th grade they briefly explained what professions we could go into afterwards, but it felt more like a one-time presentation than real guidance. We were given a general idea—like you can become a nurse, a lab technician—but no one really walked us through what those jobs actually involve day to day, what the working conditions are, or what paths you need to take to get there. After that, you're mostly left to figure things out on your own, asking older students or searching online." (SOF Diana)*

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This suggests that institutional guidance tends to be informational rather than developmental, providing an overview of options without actively supporting students in navigating them. In some cases, teachers played an important role as individual sources of support, particularly when they had professional experience or were actively engaged with students. These forms of support, however, appear to be person-dependent rather than systemically organized, leading to uneven experiences across participants. For example, one interviewee highlighted the importance of a motivated teacher:

> *"There was one teacher who really showed us how things work in real life… that made a big difference." (SOF Maria)*

At the same time, other participants reported a lack of engagement or outdated knowledge among teaching staff, limiting their ability to provide relevant guidance. Institutional support appears to be somewhat stronger in more regulated sectors such as health, where training is more structured and linked to clearly defined professional pathways. In these cases, schools and training institutions provide more consistent frameworks, including mandatory internships and clearer expectations regarding skills and competencies.

However, even in these more structured environments, support is not always experienced as adequate. Participants pointed to gaps between formal training and actual workplace requirements, as well as limited opportunities for meaningful engagement during internships. One interviewee described the limited practical involvement during training:

> *"During the internship you mostly observe… you don't really get to do much yourself. You follow the staff, watch procedures, but you're rarely allowed to participate. So even though you spend time in a real workplace, you don't gain much practical experience." (SOF Daniela)*

In contrast, in less institutionalized sectors such as tourism and IT, institutional support is significantly weaker, and students rely more heavily on informal networks, personal initiative, and workplace learning. In tourism, internships are often short and weakly coordinated, while in IT, entry into the labour market frequently depends on self-learning and participation in informal communities rather than on school-based mediation. As one IT participant explained:

> *"I found my internship through events and contacts, not through school." (SOF Deyan)*

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This highlights the extent to which institutional mediation is replaced by individual strategies, particularly in sectors where the connection between education and employment is less formalized.

Another important aspect concerns the limited involvement of employers in structured training processes. While some participants reported positive experiences with companies during internships or early employment, these were often arranged informally or depended on individual initiative rather than being embedded in stable partnerships between schools and employers. This contrasts with more coordinated systems, where workplace training is systematically integrated into educational pathways.

Taken together, the Sofia case is characterized by weak and uneven institutional support for decision-making, with significant reliance on individual actors and informal mechanisms. While certain sectors, particularly health, provide more structured environments, the overall picture is one of fragmented support, where students must navigate their educational and career choices with limited guidance. This places greater emphasis on personal agency but also increases the risk of mismatches, delayed transitions, and non-linear trajectories.

Linear Paths

The Sofia data reveals that, although less dominant than in more structured systems, linear school-to-work pathways do exist, particularly in sectors with stronger institutional frameworks such as energy and health. These trajectories are characterized by a relatively clear sequence from vocational education to further specialization and subsequent entry into the labour market, with limited interruptions or changes in direction. However, even in these cases, linearity is often partial rather than complete, as students frequently combine education with work or adjust their trajectories along the way.

In the energy sector, several participants described pathways that begin with vocational secondary education and continue through higher education or specialized training, eventually leading to stable employment within the field. These trajectories are typically driven by early interest in technical subjects and reinforced through exposure to practice-based learning environments. One participant outlined such a pathway:

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> *"From 8th grade I knew I wanted to study something related to energy… after school I continued at the university to go deeper into the field." (SOF Nikolay)*

Similarly, another interviewee described a progression from vocational school to college and then into employment:

> *"I wanted to understand things more deeply… so I continued in the college and then started working in the field." (SOF Georgi)*

These cases illustrate how institutional continuity across educational levels can support relatively stable transitions, even in the absence of highly coordinated systems.

A comparable pattern can be observed in the health sector, where training is more regulated and linked to clearly defined professional roles. Participants often described entering a specific programme with the intention of working in the field and following a relatively direct path toward employment. The presence of mandatory internships and a clear professional orientation contribute to a stronger alignment between education and labour market outcomes. As one participant explained:

> *"They told us from the beginning that there is basically no unemployment in this profession, and you feel that throughout the training. There is this sense that everyone wants you to finish and graduate – teachers support you, but often in a more informal way. Sometimes, if you're not fully prepared or you miss something, they kind of overlook it and still push you forward, so you don't fall behind completely. It's not something official, but you feel that they are trying to keep you moving. And since you know it's relatively easy to find a job afterwards, it gives you confidence that everything is leading somewhere." (SOF Daniela)*

Another interviewee described a direct transition into employment within the same field:

> *"I started working even before I graduated… and continued in the same place afterwards." (SOF Diana)*

At the same time, even these more linear trajectories are not entirely straightforward. Many participants combined education with work, adjusted their goals during their studies, or pursued additional qualifications in response to labour market demands. This suggests that linearity in the Sofia context is often adaptive rather than predetermined, shaped by ongoing decisions rather than fixed plans. For example, one participant combined work and further education:

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> *"I work during the day and study in the evening because I want to develop further." (SOF Maria)*

Overall, linear pathways in Sofia are primarily found in sectors where institutional structures are stronger and professional roles are clearly defined, such as energy and health. These trajectories provide a degree of stability and predictability, but they still require individual effort and adjustment. Rather than representing fully standardized transitions, they should be understood as relatively stable pathways within an otherwise fragmented system, where continuity depends both on institutional frameworks and on individual agency.

Disrupted Paths

In contrast to linear trajectories, a substantial number of cases in the Sofia sample are characterized by disrupted pathways, marked by interruptions, reorientations, and mismatches between education and labour market outcomes. These trajectories are particularly visible in sectors with weaker institutional coordination, such as tourism and IT, but also appear in individual cases across other fields. Disruptions often occur at key transition points, including the shift from school to work, during internships, or in the early stages of employment.

A central feature of disrupted pathways is the gap between expectations and actual experiences, which leads students to reconsider their initial choices. In several cases, participants entered VET programmes with limited knowledge of the profession and only later realized that the field did not meet their expectations in terms of working conditions, career prospects, or personal interests. One participant described such a reassessment after completing their training:

> *"After I finished, I realized this wasn't what I wanted… I decided to move into something completely different." (SOF Todor)*

Similarly, in the tourism sector, participants frequently reported dissatisfaction with working conditions, including low pay, long hours, and limited career development, which led them to reconsider their trajectories or leave the field altogether.

Another important source of disruption is the weak integration between school-based learning and workplace experience. Internships, which are intended to facilitate transitions, are often

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short, poorly organized, or lack meaningful engagement, limiting their effectiveness as a bridge between education and employment. As a result, students may complete their training without acquiring the practical skills or professional orientation necessary for a smooth transition. As one participant noted:

> *"Students come for ten days and don't really learn anything… the practice is mostly formal. You go there, but no one really explains things or involves you in the work. Most of the time you're just standing around, watching, or waiting for something to happen. After a while, you stop expecting to learn anything and just wait for the days to pass. In the end, the important thing is not what you learned, but that you get the signature that you've completed the practice." (SOF Denitsa)*

In such cases, transitions into the labour market are delayed or require additional periods of adjustment, including informal learning or trial employment. Disruptions are also linked to structural changes and external factors, most notably the impact of the COVID-19 pandemic. For some participants, periods of online learning significantly reduced access to practical training, particularly in technically oriented fields. This interruption affected both skill acquisition and motivation, contributing to fragmented educational experiences. One interviewee described how the shift to online learning disrupted their training:

> *"When everything went online… I stopped attending regularly… it just didn't work the same way." (SOF Deyan)*

In addition, disrupted pathways are often associated with changes in interests and identity formation, especially among younger participants. Rather than following a predetermined trajectory, students experiment with different fields, jobs, and educational options before identifying a direction that aligns with their preferences. While this exploratory process can ultimately lead to better matches, it also introduces periods of instability and uncertainty. For example, one participant described moving across different jobs and fields before identifying a preferred career direction:

> *"I've worked in different places… tried different things… and only later understood what I want to do." (SOF Kaloyan)*

Taken together, disrupted pathways in Sofia reflect a combination of institutional weaknesses, labour market conditions, and individual experimentation. While these trajectories can eventually lead to stable outcomes, they are characterized by delays, detours,

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and uncertainty. Compared to more structured systems, disruptions are not exceptional but rather a systemic feature of the transition process, particularly in sectors where institutional support is limited and the connection between education and employment is less clearly defined.

The patterns observed in the Sofia narratives point to a structurally fragmented and weakly coordinated school-to-work transition system, a finding that is strongly supported by existing empirical research. National-level evidence shows that a substantial proportion of vocational graduates do not successfully translate their education into stable or relevant employment pathways. For instance, only around one-third of young people in Bulgaria work in their field of training, while nearly half are employed outside their specialty, indicating a significant disconnection between education and labour market outcomes (Krasteva, 2023). This misalignment is further reinforced by broader analyses describing transitions as increasingly "uncertain, prolonged, and fragmented," with young people often relying on individual strategies rather than institutional support to navigate entry into employment (Kovacheva & Hristozova, 2022; Imdorf at al., 2022).

At the same time, systemic challenges within vocational education—particularly its limited responsiveness to labour market needs—continue to undermine the effectiveness of these transitions (OECD, 2023). Evidence from a national pilot tracking system of VET graduates provides additional insight into how these structural weaknesses manifest in practice. A significant share of students complete secondary vocational education without obtaining a professional qualification (up to 38% in some regions), while those who do transition into employment often do so rapidly but into unstable or non-specialised positions, frequently even before graduation. Moreover, between 12% and 20% of graduates cannot be traced in either employment or further education, suggesting the existence of a "missing middle" navigating informal, precarious, or externally located pathways. Taken together, these findings point to a transition system that is formally organised but substantively fragmented, where institutional pathways exist but do not consistently ensure coherent or meaningful integration into the labour market (Ministry of education and science, 2021)

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Analytical Themes in Vienna

Narratives about different VET learning environments in Vienna/Austria (differences in learning experiences between different VET formats)

In our sample, all of the young adults have attended basic lower secondary school, although some of them were not interviewed during that period because they were added to the sample at a later stage of their educational path. Although children can transition from basic lower secondary to academic upper secondary schools in theory, this does not happen often in practice. Only 8.3% of all basic lower secondary graduates transitioned to academic upper secondary schools in the school year of 2022/2023, while 50.3% transitioned to VET schools and 21.9% to pre-vocational schools (Statistik Austria, 2025).[1] This statistical pattern is at least in part also driven by the vocation-oriented educational formats of basic lower secondary education, which we will explore later when we discuss career paths and early on-the-job practice.

In our sample, two young adults pointed out personal and structural challenges they experience in and around their respective basic lower secondary learning environments. On a structural note, Alexander experienced a lack of available school spots he attributes to him being put into an integration class,

> *"[…] and we were looking for a school I had a school around the corner but there was no more room //mhm// and it was difficult to find a school until I ended up in an integration class, which I didn't really understand at first that it was an integration class I mean I noticed that the children weren't normal, so to speak //(laughs)ok//" (VIE Alexander, wave 1, p. 2, par. 14)*

[1] Pre-vocational schools are often a way to bridge the age gap before being able to assume an apprenticeship position, which can only be taken up after 9 years of schooling. As primary school and lower secondary school typically last for four years each, an additional year of pre-vocational school is often needed.

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Lukas described his basic lower secondary school as predominantly consisting of children with migration backgrounds and as an environment that is characterized by conflict. About their class make-up he said,

> *"So, our class consists mainly of Turkish children and there are two Austrians. So, only me and @@Elias## are only there as Austrians. //mhm// And before (/) there was one girl (/) so there are actually four German course children, but one girl hasn't been in the (-) class for almost a year, although she was supposed to be. Because she got pregnant. //mhm// And that's why she can't go to school and was at the doctor's and just because (/) the child is already out and so on and now she's still not in school and yes //mhm//" (VIE Lukas, wave 1, p. 25, par. 198)*

In terms of conflict, he described one situation in which he was almost involved in a fight and another one in which he grabbed another student's throat because he insulted his aunt as a bitch – both marking the presence of violence.

In terms of learning itself, his school offered coaching classes on how to learn properly. However, to him, it seemed inefficient when it came to learning how to learn. It rather offered an opportunity to resolve conflicts.

> *"We usually sit in a circle of chairs and talk about it or do or postpone a lesson on learning coaching and do learning coaching [Lerncoaching] beforehand, because it just happened to fit in, or do something else in learning coaching. We get notes or something and that also has to do with learning coaching and so on. We did that in the third and second, but now we mostly just discuss it and stuff." (VIE Lukas, wave 1, p. 19, par. 166)*

> *"So there, we discuss what we could perhaps do now, i.e. educational outings, or whether something happened, whether someone was beaten or insulted." (VIE Lukas, wave 1, p. 20, par. 168)*

Alexander and Lena were the two young adults in the sample who attended a pre-vocational school when they were interviewed within the project.

Alexander described pre-vocational school as being structured differently than basic lower secondary school. He mainly had two-week projects and plenty of career orientation days. On a personal note, he highlights the support he received there as such,

> *"I finished pre-voc in June //mhm// with excellent results, //mhm//, which I'm very proud of because I was always really bad at school (laughs). //yes// (-) Um, my teacher (-) also motivated me a lot and helped me a lot. Without him, I wouldn't have made it through the year, and without him, I wouldn't have found an apprenticeship." (VIE Alexander, wave 3, p. 4, par. 35)*

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After basic lower secondary school, Lena attended a pre-vocational school because it is the only place that accepted her. Her grades were not good enough for the technical school for social professions she had wanted to attend. However, the pre-vocational school also has a social focus, which would eventually help her improve her grades this year. To her, the class atmosphere improved significantly, and – just like Alexander – her grades also improved dramatically.

Seven young adults in our sample were attending vocational schools as part of their respective apprenticeships when they were interviewed at one point of the project. Each vocational school specializes in one or more, but similar, trades. However, Lukas best captured the temporal irregularity and lack of belonging that come with vocational school. When it comes to schooling, he felt that vocational school was the most complicated part about doing an apprenticeship. At that moment, he had weeks of school and then none instead of once a week. He did not like this format because he kept forgetting what he had learned weeks ago. He felt that vocational school was not really like a conventional school where you feel a sense of belonging,

> *"I don't know anything about school I just know (-) I come to my class it's lessons, break lessons break lessons and that's it. That's what I actually know about school, I just know that I get there and (-) school. I don't really want to deal with school that much, what I've heard from the teachers or something, always have all the important things with you, because the classes aren't locked, and there have already been things where they've been stolen and everything, even books or something, always in the bags and take the bag with you." (VIE Lukas, wave 3, p. 27, par. 147)*

Alexander felt that vocational school was more of a nuisance, which got him into a bit of trouble with his supervisor at work who could have fired him for his lack of attendance at vocational school.

While second chance programs do not precisely fall within the purview of VET programs, they are still closely connected to VET in that VET dropouts go there and that young adults graduating from second chance programs often go into VET programs, such as apprenticeships. They are marked by closer collaboration with trainers/coaches who support young adults to find jobs and/or education. This collaboration consisted in getting advice on how to apply for jobs, career orientation, and improving basic skills. Jacqueline described a typical day at production school as follows,

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> *"Well, first I had practical training, which means I was with a trainer on Monday and Tuesday (-) and we did various things, like tables or sloping (/) or restoration work, for example, sawing, sanding, and so on //mhm// yes. (-) That was in a group. Afterwards, uh, there was sports //mhm//, Wednesday is still like that //mhm//, then on Thursday and Friday there was this knowledge workshop where we kept refreshing our German, math, English, and general knowledge //okay//, just like in normal class //mhm//." (VIE Jacqueline, wave 3, p. 3, par. 31)*

Some young adults embraced the experience while others struggled in some of its aspects. Jacqueline liked the small group formats and the lower-threshold learning environment which was not marked by being tested constantly at her production school. Goran liked that production school had a lighter mood than his previous schools (basic lower secondary school and technical school). Florian credits his trainer for having trust in him, which helped him find an apprenticeship. Benjamin did not like that his trainers were just moving him around,

> *"I was just sent there (laughs). So, I wasn't informed beforehand and so on, I was just sent there and my trainer from the 5th district said, um, that I shouldn't forget my Math, German, English and so on. Because the ones in the 5th district concentrate more on finding a job and the ones in the 19th try to educate you." (VIE Benjamin, wave 5, p. 7, par. 72)*

After dropping out of her previous higher VET school, Samira felt underwhelmed at the second chance program because she had experienced a higher VET learning environment before.

The sample included only one young adult who attended secondary business school (Handelsschule), an intermediate VET school. They are often merged in one school with a secondary college of business administration (Handelsakademie), which is a higher VET school. Nicole thought her school was one of the best, but also one of the toughest schools in Vienna. She thought the secondary business school is basically the same as the secondary college of business administration at her school – they even get the same tests. Just access to secondary college of business administration is harder. However, Nicole's assessment of her school after more than a year there changed quite markedly,

> *"As I said, it's an insane asylum //(laughs)//. (grinning) So, from the (-) outside it seems to be a very nice - (/) a very good school //mhm//. From the inside, there are really very smart students (-) that I really appreciate and admire. And then, as I said, there are some students who are just a bit of a mess //mhm//. They just somehow (/) try to talk their way out of something, explain it to someone, but they're as dumb as a post //mhm//." (VIE Nicole, wave 3, p. 51, par. 174)*

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Florian attended a secondary college of business administration, but he was so bad in business school (he had five fail grades) that he started looking for apprenticeship positions while he was still there.

Three young adults in our sample were attending a technical school (Fachschule) at one point during the project. Like secondary business schools, technical schools are short-cycle (usually 3 years) program that is often merged within one school with a higher VET school, in general, or technical college, in particular, that follows the same economic direction. Adarsh attended a technical school for IT. After his first year he reflected on its competitiveness by discussing how many of his classmates had dropped out,

> *"Hm, so we were ahm in the first one a total of thirty-one pupils //mhm// and one girl //mhm// and yes, and ten or so then ahm (/) had to do an apprenticeship //mhm// or changed, or, yes, just stopped, had to repeat." (VIE Adarsh, wave 3, p. 5, par. 72)*

On a personal level, he simply could not keep up with the practical applications in two subjects – network technology and systems engineering – in his third year. Carolin was attending a technical school for restaurant management for three years before moving on to do an advanced training cycle (Aufbaulehrgang) afterwards. At her restaurant management school, she struggled with differences in evaluation between teachers. She compared two similar situations with different outcomes because of the teachers she had in these subjects. One had given her a notice stating that she was at-risk-of-failing-class ("Frühwarnung"), while the other did not. However, in both subjects she was on a passing grade.

> *"And that's where you really see the difference between nice teachers who understand you, who support you, who at least give you some stability, who at least give you some support, versus (English pronunciation) asshole teachers who just //mhm// who just (-) really put you down like this: Yeah, yeah, I don't think you can do it, or I don't think you have the motivation, or that you're interested in my subject. I mean, I don't have to be interested in your subject. Honestly." (CAROLINVIE CAROLINE, wave 3, p. 10, par. 28)*

She also struggled with a lack of support from one teacher that could have become costly for her.

> *"And that's so rude, and I hate this teacher, ah (drawn out) with all my heart (---) But (drawn out) I'm just watching now, because (-) some people say I shouldn't make such a big deal out of it, but the problem is, if I don't have a job, I won't be allowed to take the final exam in third grade." (VIE Caroline, Wave 3, p. 3, par. 19)*

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During the period of the fifth and final interview, Carolin was doing an advanced training cycle in restaurant management. Her school had two branches (social and business). She had gone to the business branch for her three-year cycle and at that point she had to do the social cycle because students were supposed to switch branches in the advanced training cycle. At school, she did not like learning Spanish because she did not like its grammar. She also struggled at school because of remote learning where she found it hard to follow the lessons. On a structural note, her training cycle followed a new evaluation standard (NOST ~ Neue Oberstufe) that was more nuanced. For example, one could do certain exams earlier to advance faster, or one could repeat certain competences that had been failed (not the whole subject). She did not like this new evaluation system. Lastly, Jacqueline had gone to fashion school before dropping out. She did not have supportive teachers at fashion school. She had even been berated by some teachers,

> *"And that (/) just hurts you afterwards. Then you come home and you're desperate afterwards. And especially for me, it was like that afterwards (-) uh, when I'm totally exhausted and sad. So, when I'm totally sad and exhausted, and I'm crying around. I uh (/) I just go to bed and sleep through it //mhm// I (/) I kind of like that about it." (VIE Jacqueline, Wave 2, Transcript 1, p. 27, par. 120)*

About her disdain for main subjects and her love for side subjects, she said,

> *"Above all, I really know a lot (/) I mean, I really know a lot. So, in terms of minor subjects and stuff //mhm//. Math, German, English (takes a deep breath) that's something else for me //(laughs)//. That's //okay// for me. But, for example, biology, history, politics, geography, those are things that, um, open my eyes to new things //mhm//. Because they're completely different things for me. (-)" (VIE Jacqueline, Wave 2, Transcript 1, p. 21, par. 108)*

Lastly, only two young adults attended a technical college or higher VET school during the period of interviewing. Simone attended and was close to completing the Higher Federal Graphic School and Research Institute. Their learning was mostly divided into theoretical and practical lessons. Simone describes the difference as follows,

> *"In practice classes, you enjoy yourself, you do something, you know what you're doing, you know what the end product will be. In theory, you don't really have that //mhm// and I just think that practice is the best thing." (VIE Simone, wave 3, pp. 20-21/62)*

Personally, she really liked workshop classes where they learn about screen printing in practice. Often, they can even work more autonomously.

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On a typical school day,

> *"In any case, on Monday, uh, school, I'll be at school at eight (-) then we have the first four hours of MVMI, no idea what the regular abbreviation for that is (-) in any case, we have MVMI there (--) um, that's where we work on the computer with Illustrate or InDesign, at the moment we're doing a project there […] then we have two wonderful hours of sports, which is a must at school (--) […] After the lunch break, we have two hours of MGWD, I don't know, something to do with media design again. […] that's my day and then at five in the evening we finish school, then I drive home, it takes an hour to get home and then I'm home at six (stretched out) (-) I can maybe relax for ten minutes and then it's already dinner time and after that we either watch a movie or play something or (--) we sit (/) or I sit in bed and read (--) and then yes, that's basically my Monday routine, and the other days are the same, but with sports instead of reading // mhm//and dinner, dinner is after sports." (VIE Simone, wave 3, pp. 19-20, par. 60)*

They also had the opportunity to experience other departments of their school.

> *"So basically (/) we have the opportunity to try out the other departments in the third year //mhm// […] . But as I said, you only have a week. Can you try out the other departments, or do you stay in your own department and show the others around and explain things? //mhm//" (VIE Simone, wave 4, transcript 2, p. 18, par. 87)*

Although it was quite demanding, her school was also quite forthcoming regarding its students' projects,

> *"Some teachers even insist that if something important comes up regarding this project, we should skip their classes and work on the project. //mhm// (--) And I think the project accounts for sixty percent of our final grade, not to mention the final exam, //mhm// (-) which I hope we'll pass. (-)" (VIE Simone, wave 5, p. 27, par. 72)*

Lena managed to get into the Federal Institute for Social Pedagogy, a higher VET boarding school, after improving her grades in pre-vocational school. However, she did not go into great detail about the school's learning environment pre-Covid in her interviews. She only discussed how it was a challenge to go to a boarding school now and that the practical work at school was exhausting, but manageable.

Ultimately, the last wave of interviews also offered some insights into how the respective VET learning environments changed due to the advent of the Covid-19 pandemic. Remote learning became a common structure for almost all of them. Only, Adarsh described that their school had workshop classes on-site in spite of COVID restrictions – however with safety measures (mandatory wearing of masks and open windows). Adarsh, Florian, and Simone discussed how remote learning had worsened their motivation. Carolin felt that her

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concentration was getting worse. Lena experienced severe academic stress during the pandemic due to uncoordinated assignments, little feedback from teachers, and lost internships. On a structural level, VET programs became less practice-oriented. At that moment of her last interview, during the coronavirus pandemic, Selina observed that in phases of remote learning the vocational school mostly sent her tasks to do on her own. Showing presence had also become a core principle to Goran and Benjamin at their respective second chance programs,

> *"Well, we have to be available from 8 am to 4 pm. So we have to get up at 8 a.m. //mhm// and there are people who can't manage that (--) I've always managed it so far. (---) And that's just the way it is, you have to write "good morning" to the trainer so that he can register you as present and anyone who answers after an hour or an hour and a half doesn't get paid for that day. Because that's just the way it is, they are then entered as not excused. (---) Because, for example, if I say now, yes, I have a dentist appointment at 8 or 9 o'clock, he says "Okay, fine. Just contact me after the appointment." I just have to take a photo of him apologizing and that's it. (Pause 5)" (VIE Benjamin, wave 5, pp. 13-14, par. 132)*

Narratives about School-to-Work Paths of Viennese Young Adults in the Austrian VET system

Decisional Patterns

Particularly among first- and second-generation migrants in the sample, social mobility was a driving force. This pattern was more pronounced at earlier educational junctions, like the one between primary and lower secondary as well as the one between basic lower secondary school and upper secondary education/training, when parents had more influence on the young adults' decisions.

Adarsh's parents, for example, wanted him to go to an academic lower secondary school, but his grades were too bad. This eventually led them to the decision that he should go to a private basic lower secondary school. However, he had to leave because the financial strain was too much for the family. (VIE Adarsh, wave 1, pp. 6-7, par. 86) In the earlier stages of his upper secondary education, he still wanted to go to university, but his future orientation was more diffuse,

> *"Adarsh: Yes, I just want to study, go to university. //mhm// Yeah. Interviewer: What do you want to study? Adarsh: Hm, I'm not sure yet." (VIE Adarsh, wave 3, p. 59, par. 913-915)*

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At the end of the project, Adarsh's educational social mobility aspirations were somewhat halted by bad grades at school and adjusted by trying to find a job *(VIE Adarsh, wave 5, p. 27, par. 270).*

Nicole was very much influenced by her father's opinion and by her desire to make him proud. *"He just wants us to do well at school and really achieve something, because he's also an independent businessman without education." (VIE Nicole, wave 1, p. 24, par. 71)*

Nesrin who fled her country of origin was determined to become a medical professional, so much that it was part of the reason the family fled as this career path was not available to girls there. On moving away from her country of origin, she says,

> *"I actually wanted to //mhm//. It was difficult for me to stay there //mhm//. […] It was just difficult and you couldn't continue your education //mhm//. It was (--) impossible //mhm//. In [Country of Origin] (unclear, 1 sec) that's not possible, and I wanted that too, because I wanted (-) I wanted to be a doctor there too //yes// and it wasn't possible there //mhm//. And yes. (---) But if I'm there, then I'll do my best." (VIE Nesrin, wave 4, p. 25, par. 273)*

In many cases, technical and life experience was a driving force, too, because the transfer of basic skills into VET is straightforward. Adarsh, for example, described his decision to transfer to a technical school as such,

> *"I don't want to go to an academic upper secondary school because it's too difficult //mhm// or to a technical college, um, I didn't need to go to a pre-vocational school, I only had the choice between a technical school or a commercial college //mhm// hmm... at first I decided on the commercial college, but my uncle said that, um, it's already difficult there //mhm// a lot of math and stuff, you have to give presentations in front of a lot of people, and yeah, I don't really like giving presentations //mhm// yeah, but at a technical school, electronics, I already know my way around electronics //mhm// for example, I can install software on a laptop now, or burn videos to a CD//mhm// yes, or install photos from a cell phone to a computer//mhm// yes, I know my way around this area well, and that's why I decided on technical school//mhm// // mhm//"* (*VIE Adarsh)*

Lukas' decision after basic lower secondary school was in fact made after his mandatory work practice days at his basic lower secondary school. Lukas did them as an assistant to cooks at a retirement home *"and in the end, it was a shame that I had to leave the company and go back to school. //mhm [laughs]// Because it was really fun and all that. //yes// I would have liked to have stayed there and worked. (pause 5)" (VIE Lukas, wave 1, p. 12, par. 108).*

Carolin had a week-long internship/summer job in gastronomy where she found out about the advantages and disadvantages of gastronomic work.

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> *"I decided to become a restaurant manager and then found out more about the advantages and disadvantages. The disadvantages are that you have to work very long hours and don't have as much free time as you would like, and (-)" (Carolin, wave 1, transcript 2, p. 19, par. 249)*

She also had cooking class at her basic lower secondary school, which allowed her to find her interest in cooking, too *(VIE Caroline, wave 1, transcript 2, p. 10, par. 130-132).*

However, some young adults also decided against their own interests, like Nicole who was always interested in and gifted at drawing (consistently across wave 1-3) but decided to go to a secondary business school instead. Others, like Simone, felt that there were not enough opportunities to pursue their interests and thus chose other career paths. She learned how to repair cars from her grandfather and was very excited about the skills that come with it. However, when it was time for her to look for businesses to do her mandatory work practice days at, she struggled to get accepted to car repair shops,

> *"Then I just tried out (/) so I went to what felt like ten million car repair shops. They didn't accept women. So, they would have had positions, but they didn't accept girls and women. And then my aunt and I were really pissed off" (VIE Simone, wave 1, p. 36, par. 383)*

If basic skills could not be acquired before or within the upper secondary level, students often went or were sent to second chance programs where they got the opportunity to catch up on them. On how her basic skills improved within the second chance program, Jacqueline, for example, replied,

> *"Yes. (-) Definitely (-) um, my English has definitely improved. //yes// Maths is also kind of (-) a little bit //okay// well, not that much (smiling), but at least I'm better at basic arithmetic and word problems now." (VIE Jacqueline, Wave 3, p. 23, par. 63)*

Mixed Patterns of Institutional Support

Some young adults in the sample, sought out institutional support to help them a make a choice on their educational path after basic lower secondary school. However, the institutional support was mostly viewed ambivalently. Especially the 'talent check' (Talentecheck) was viewed as useless by Lukas, Simone, and Carolin, who described it as such,

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> *"At school here, we once had a talent check on the computer to see what we could do and so on, or in German class there was something like that at AMS, where there was a talent check, so to speak, to see what you could do, and then they looked for professions that matched your skills, and, um, there were so many results, but they just didn't apply to this person." (VIE CarolinE, wave 1, transcript 2, p. 27, par. 367)*

> *"And I think this talent check was kind of useless in my opinion, because there are actually many skills that are simply inherent in a job or in a job." (VIE Caroline, wave 1, transcript 2, p. 27, par. 369)*

Goran felt a lack of agency because the institutional support he experienced was telling him what to do,

> *"NMS [basic lower secondary school] told me I could go to this //okay// school for another year because I couldn't find an apprenticeship and they told me to enrol in this school //mhm// for another year. Don't do four more years //mhm//. Register there, do a year of pre-voc and then yes //mhm//. Then I registered there and then a youth coach came //mhm// and helped me write applications //mhm//." (VIE Goran, wave 4, p. 18, par. 182)*

On the other hand, Carolin, for example, viewed her experience with "Girl's Days" which were meant to support girls' career paths positively as she found interest in potentially becoming an electrician *(VIE Caroline, wave 1, transcript 2, p. 18, par. 241)*. Alexander also endorsed that his school offered multiple programs to help them decide on their further educational path *(VIE Alexander, wave 1, p. 27, par. 46).* Lukas, on the other hand, felt no need for institutional support because he was already well aware of what he wanted to do after basic lower secondary school *(VIE Lukas, wave 1, p. 35, par. 278).*

Institutional support at later stages of their educational trajectory mostly came through extracurricular programs or second chance programs. At the time he attended pre-vocational school, Alexander reflected rather negatively on the extracurricularly offered 'youth coaching' program*, "Uh, yes, I'm now also involved in youth coaching, which is a type of organization. Are you familiar with it? //mhm mhm// Okay? Yes, um (--) didn't help me very much." (VIE Alexander,, wave 2, p. 3, par. 28)* Jacqueline was referred to a production school by youth coaching she had received after dropping out of her fashion VET school.

Second chance programs, on the other hand, are an institutional support program in and of themselves. They offer hands-on support for young adults who are currently out of school or training. At his job preparation training, Florian had two youth coaches who were there to

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support him with problems, but also to help him find a job *(VIE Benjamin, wave 4, p. 20, par. 140).* Samira described her time at production school as such,

> *"Um, well, it's like this, um, first you come to a rehearsal here // mhm// that means you have a week there where you take various tests and then, um (-) what else is there, they just talk to you a bit //mhm// to get to know you, and then they either decide not to take you at all, or to put you in the over one, which is for those who, for example, did badly in the tests // mhm// who aren't so (--) good at school or something like that, for example //mhm// that's how I would put it, and then there's the second group for those who are actually better //mhm// and can do more and and and and yes. Then it's divided up like that //mhm// or you're not accepted at all //ok// yes. (---)" (VIE Samira, wave 4, p. 21, par. 106)*

Production schools often offer multiple groups to test out different crafts. Jacqueline, for example, talked about the medicinal herb and restauration lab at hers.

Linear Educational Paths

Of the fourteen young adults in our sample, six (Adarsh[2], Alexander, Carolin, Lena, Lukas, Simone) followed somewhat linear paths as they transitioned towards VET and stayed within one VET program consistently without dropping out. However, this normative linearity had different expressions across the different young adult life courses captured by the sample. In the case of Lukas, his experience doing his trial week as an assistant to cooks at a retirement home at end of basic lower secondary school sparked the desire to pursue this path further. Throughout the different interviews over the years of the project – his upper secondary education –, Lukas faced multiple challenges such as hard-to-deal-with superiors and a change of workplace, but his dedication did not waver much. Especially, consistent positive feedback on his cooking skills, even early on, brought him self-confidence in his occupational role.

> *"It's a lot of fun. //mhm// I actually cook relatively (--) a lot for a first-year apprentice. In the first year, you really only do things like (/) learning how to cut vegetables, perfecting that skill. //mhm// And in the second year, other things are added, but in the first year I have often fried beef cutlets or made pancakes or veal roulade." (VIE ukas, wave 2, p. 2, par. 22)*

[2] Adarsh followed a somewhat linear path in terms of not dropping out, but he had to repeat grades twice and felt that he was close to dropping out in his last interview.

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On positive feedback in his second apprenticeship year

"then later @@Robert## asked the boss if he wanted some semolina pancakes, the boss said yes, put some in, then he just ate it and told @@Robert## because he was just in the office, he told @@Lukas##, he made the semolina pancakes (asking) very well (-) that's always the highlight that I like when I cook something and the chef really likes it" (VIE Lukas, wave 3, p. 25, par. 143)

Before his final apprenticeship exam, he reflected:

"[…] yes of course //exactly// the problem is the practical exam I'm not so worried about that but I find the theoretical one much more difficult than the practical one //aha// having the basic knowledge is much more difficult than having the basic knowledge to cook //yes// and so I'm like ok if I pass the practical one and don't pass the theoretical one the first time //mhm// I'll make sure that I pass it the second time //mhm// if I don't pass it the second time I won't go on and just go to the military anyway" (VIE Lukas, wave 4, p. 8, par. 93)

Lena also had an early desire to pursue training and a career as a social pedagogue and later psychologist/therapist. However, she had to go on a brief detour through pre-vocational school to improve her grades to gain access to the higher VET social pedagogy school she wanted to attend. This marks a detour because usually one can already enter higher VET social pedagogy schools right after completing basic lower secondary school. Yet, the decision to take this detour was due to her early determination (at the end of basic lower secondary school) to get into higher VET. As opposed to Lukas, Lena stayed determined in spite of less positive experiences at school - for example, in her first year in higher VET, she reported about negative experiences with teachers, including a music teacher who made inappropriate jokes and a nutrition teacher whose grading system she finds unfair.

At the end of basic lower secondary school, she reflected, *"I'm helpful... people say I have helper syndrome, but I just want others to be happy." (VIE Lena, wave 1, p. 23, par. 258)*

"But on a positive note //mhm// (--) the atmosphere in class is much better (-) at this school //mhm// (-) and my grades have also improved massively." (VIE Lena, wave 2, p. 1, par. 20)

"[…] I'm registering with the Federal Institute for Social Pedagogy this year again //mhm// (Pause 5) […] Yes, she [a social worker she met] told me that there is also something like that [VET for social pedagogy], as well as social studies //mhm//. And my current (-) head teacher is also supporting me in getting into a school like that. Because the Federal Institute for Social Pedagogy only accepts one class each year, which means fifty-five students and not more." (VIE Lukas, wave 2, p. 21, par. 227 & 231)

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"Basically, I need the school education because it will enable me to continue studying after my social education, which means study psychology (-), but what I also think is cool (/) and one thing that keeps me at school is that, starting in the second year, I think, we also have a bit of psychology included in our education studies, and I find that really interesting and exciting in general." (VIE Lukas, wave 3, p. 18, par. 182)

On her being physically and psychologically abused by classmates being a career motivation:

"That's also one of the reasons why I want to be a psychologist or therapist someday, precisely to help other people through such times and (drawn out) (-) to be able to support them and (drawn out) (--) I just don't like that other people have to go through what I went through." (VIE Samira, wave 4, p. 33, par. 275)

Alexander's determined and somewhat linear path from to basic lower secondary school to an apprenticeship via pre-vocational school was marked by a lack of interest in school environments mixed with a desire to work.

"I was extremely ready for upper secondary school. //aha// I still am today, and I could easily manage an upper secondary school. My head teacher said that if I were you, I would go to college. //mhm// I just said no, I don't want to. //mhm// I've had enough of school. I'm here because I need a ninth year of school." (VIE Alexander, wave 2, p. 19, par. 118)

It was one of his teachers at pre-vocational school who actually set him on his path to do an apprenticeship at the public railway company.

"I have an entrance exam at ÖBB next week. //mhm// Um, without my main teacher, I would never have gotten there, because he found me some work experience days there. //mhm// Which I was able to complete there. So I did that, they liked me, and they said I should apply there. (---) I did that too, and yeah, let's see what happens next week." (VIE Alexander, wave 2, p. 3, par. 28)

"Then, basically (-) that [starting his apprenticeship] was a turning point for me, like, okay, childhood is over, now the serious stuff in life begins, but it's not really like that (laughs) //(laughs)//, which I realized later, because the first ten weeks (-) we had basic training where we learned the background knowledge we needed for work. (-) Those were the hardest ten weeks of my life because it was non-stop learning. […] But I made it through the ten weeks, survived, (-) and afterwards I was extremely relieved and then I started working, really (-) in a call center //mhm// (-). That was fun, it was extremely fun, I see myself in that (/) in that. (-) Uh, by the way, during the apprenticeship, you're basically at three locations: in the call center, at the counter, selling train tickets, //mhm// because I'm with ÖBB //yes// or in the travel agency. (-) But only in the travel agency in the second year of the apprenticeship. I then moved from the call center to the counter." (VIE Alexander, wave 3, p. 4, par. 35)

"I talked to my parents about it and to my trainer, uh, that I might become a trainer myself (--) because, first of all, I don't have to work shifts, I have fixed hours. And it's only Monday to Friday,

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which means I can have a family on the side. (laughs) Um (--) and financially, it's the same. //Yes// Even fewer tasks. And why not?" (VIE Alexander, wave 4, p. 14, par. 111)

In the near future, he still wanted to become a trainer for apprentices at the time of his last interview

"Simply because the working hours are more regular and I [stretched] (-) enjoy communicating and working with people of (/) my age, so basically my current age [laughing]." (VIE Alexander, wave 5, p. 5, par. 35)

As mentioned above, Carolin knew early on – during her last year of basic lower secondary education – what to expect from work in gastronomy and accepted the requirements. She moved on to an intermediate VET school for restaurant management and then decided to do an advanced training cycle which would end with a higher education entrance exam and diploma if it is passed.

Her mother and her respective struggles to find stable work have been a motivation early on,

"I mean, the higher you go, the more you have to learn, that's clear. //mhm// (---) And the higher you go, the better your chances are, because I only wanted to do it for a year (laughs slightly) and then I wanted to work, so that I wouldn't be a burden on my parents anymore, so to speak // Okay// um (drawn out) but my mother said that if you do three years, you'll have better chances //mhm// because then you don't have to do an apprenticeship anymore, you're fully trained (-)" (VIE Caroline, wave 2, transcript 1, p. 9, par. 44)

"Um, my mother said, 'You can be anything you want, but you have to do better than me.'" (VIE Caroline, wave 2, transcript 1, p. 12, par. 54)

In the end she remained with her advanced training cycle although, at that point, she already wanted to become a real estate agent. She knew that a high school diploma can be important to either start working right away or to get access to the university.

"What I want to be is a real estate agent, and, um, for that I need my high school diploma, and then I think I'll have to study at university, because you have to memorize the laws, various laws." (VIE Caroline, wave 5, p. 15, p. 50)

However, she also acknowledged her need to earn money and that this might detract her from becoming a real estate agent.

"Interviewer: So you'd rather work than study? Carolin: Yes, it depends. Some real estate agents only require a high school diploma, while others require a university degree, and yes, I'll take a closer look at that. And if it's really the case that you can only get ahead with a university

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degree, then unfortunately it's not for me, because, yes, it's—it would be wonderful to have a degree, but the thing is, you have to consider that you don't have much money, let's say, and you have to do part-time jobs." (VIE Caroline, wave 5, p. 26, par. 95-96)

Lastly, Simone had many interests and thus applications for different VET schools in the last year of basic lower secondary school. In the end, she got accepted into the higher VET school for graphic design.

"So, the right decision was that I went to the Media Makers Day, which impressed me (-) // ok// because you could do a lot yourself there //mhm// and it was also the field I like there were also other branches there was also photography and I wanted to go into photography but (-) I knew that there were so many applicants that I wouldn't be accepted //mhm// (-) So, I went into printing and media technology //mhm// At first I thought, yeah, it'll probably be cool, or maybe not, but then (/) it turned out to be really cool." (VIE Simone, wave 2, pp. 60-61, par. 654)

Although printing was a consistent interest in year two and three and an occupational aspiration in year four of her VET, her occupational aspirations became less specific in her final year of VET.

"So (-) I want to be a printer or work in advertising (/) at an advertising agency, I would do that because I really enjoy the practical side of it, so I would choose that as a career (-) and because you can earn quite a lot as a printer (-) per month, because (/) I don't think there's a monthly salary, but rather a commission" (VIE Simone, wave 4, transcript 2, pp. 40-41, par. 235)

Reflecting on how the institutional support program she attends besides VET school helps her and what she expects from a future job

"Exactly. And when looking for a job. Because I also have (--) shortcomings or recently had the shortcoming that I wouldn't be able to graduate, //ok// (---) that I would also find a job or a new apprenticeship, that they would help me with that. Because they know (-) what I'm good at, (-) what skills I have, //mhm// (-) they would know what kind of career I should pursue. //mhm// (-) I don't really care what it is. The main thing is money. (laughing) //ok// (--) And fun." (VIE Simone, wave 5, p. 37, par. 102)

Disrupted Educational Paths

While there were two young adults (Nicole and Jacqueline) with somewhat disrupted paths among those with three or more interviews, the young adults who were added during the fourth (penultimate) wave (Selina, Nesrin, Benjamin, Goran, Florian, Samira) were sampled within second chance programs – i.e., with less linear paths.

Nicole dropped out of secondary business school after three years in which she also had to repeat the first grade. Afterwards she got into an apprenticeship which she also quit early on. At the point of the last wave interview, she was unemployed.

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> *"But I never really wanted to start Secondary Business School. Never. I always wanted to do design school or something else. But never Secondary Business School" (VIE Nicole, wave 5, p. 17, par. 104).*

> *"And then I stayed in school, I kept doing that until (/) first grade again, then I went over to second grade and in second grade, um (-) I was somehow so unmotivated. I really lost all my energy, I don't know why, but I lost all my energy completely" (VIE Nicole, wave 5, pp. 17-18, par. 104-105).*

> *"'Mom, Dad, I'm sorry, but I can't go on with this school.' Um, they said, 'yes okay, if that's what you really want, it's your life,' because my father had already got over the first (/) shock, so he just got over the second shock anyway, like that. And then he just said, 'Okay, fine, it's your decision, you have to see what you do with your life.' He accepted it, I left school, I started an apprenticeship //mhm// I did this apprenticeship for three months, a trial apprenticeship, but then I quit because I wasn't treated well there //mhm// and then (--) I became unemployed (laughs) //mhm//" ((VIE Nicole, wave 5, p. 18, par. 105).*

Although she also got advanced tasks because of her maturity at her gastronomy apprenticeship, she quit because she got too many tasks while or maybe even because the others seemed lazy to her and also because the team seemed dysfunctional to her and one colleague antagonized her.

After dropping out of school, young adults found it hard to find a job on what seemed like a competitive labour market to them. Selina, for example, reflects on her struggles to find an apprenticeship position, which is a uniquely regional problem in Vienna which is the only Austrian region where young adults seeking an apprenticeship position exceed the number of apprenticeship positions available to them (3.5 ratio of those seeking to available positions; AMS, 2024, p. 4),

> *"I've been looking for an apprenticeship for over a year //mhm//. I have, I've applied to almost everyone, now I've been accepted, I've also been on trial and they said I should wait for one, others //mhm//. Yes. (-)" (VIE Alexandra, wave 4, p. 38, par. 458).*

> *"In the beginning I used to go to them //mhm//, but then they said I had to send them through the internet and then I didn't go myself //mhm//. (--)" (VIE Alexandra, wave 4, p. 38, par. 466)*

She also highlights how competitive a Viennese apprenticeship market is that often has high-threshold entry prerequisites and in which you are easily replacable when you do not keep up,

> *"(...) after I finished school, I actually got an apprenticeship at Spar [a big supermarket enterprise] uhm, I went to the Spar Academy //mhm//. Then I had an exam too, I passed the exams, then I got a letter for a job interview, which I also passed //mhm// (clears throat) then we had a trial job to make sure //mhm// whether (everything was right?) (pause 5) I also passed.*

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> *Uhm and then when I had to sign the contract //mhm// so that I could start, my mom's brother died //mhm//. And then we went to Romania straight away (for a few days?) and then I couldn't come any more //mhm// and they gave the place to someone else." (VIE Alexandra, wave 4, p. 37, par. 448)*

On her frustration with the Viennese labour market (especially for gastronomy/tourism) for (underqualified) young adults, Jacqueline reflected,

> *"[…] maybe the whole thing just got on my nerves a bit, all the applications, all that stuff, and then, well, everything together was just too much for me. Vienna is a bit much for me now (-) it's a beautiful city, but I just can't do it anymore, I just don't like being there anymore. I'm still there now, but yeah (laughs)" (VIE Jacqueline, wave 4, p. 27, par. 167)*

> *On finding it much easier to be invited to job interviews in Tyrol as opposed to Vienna, "That was exactly two weeks before //mhm// So then I drove with some skiers (/) well, some skiers drove me to Tyrol and then I had six job interviews, and everyone said yes" (VIE Jacqueline, wave 4, pp. 2-3, par. 29)*

The lack of apprenticeship and general positions for underqualified young adults in Vienna also means that many underqualified young adults' training and job paths do not happen within one specific sector as they have to move around to find training and job opportunities. Florian did an internship as a plumber and then a supra-company apprenticeship as an office clerk. Goran claimed that he would do almost all manual labour, which is also reflected in the menial work he performed in stonemasonry, construction, tiling, painting, and metalwork. Samira went to a higher VET school for tourism, dropped out because of a lack of interest, was then cast on a TV show for modelling which led to a rather brief period of modelling in cooperation with a modeling agency, and at the last point of interviewing went on to do an apprenticeship as an office clerk. Selina discussed her diffuse selection of jobs as such,

> *"I was always, I always wanted male things earlier //mhm//, because they said more women with men, if a woman, if a woman or a girl works with men, they have better chances of everything //uhu// and (clears throat) I was very interested in mechanical engineering. […] And then I (--) then I did car body construction //mhm// (-) then what else did I do? (--) Um (---) I tried retail, cosmetics, hairdressing (--) what else? A few things, I also tried motor vehicles //mhm//. Construction assistant //mhm//. (--)" (VIE Selina, 36-37/438, 440)*

Learning and work experience in Viennese VET programmes

Everyone in the Viennese sample was at one point attending a basic lower secondary school where vocational learning was mainly institutionalized through practical work experience

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days where they try out a job for a few days – not more than a work week (see Austrian Chamber of Commerce, 2025). The goal is to experience an occupation firsthand by watching, asking questions, but also by doing job-related tasks that do not require acquired (formally recognized) skills (ibid.). The city of Vienna even offers some positions in different sectors (Pedagogy/Social Jobs, Technology, IT, Administration, Infrastructure) for these practical work experience days (City of Vienna, n.d.).

The experiences young adults made in these little internships were mostly different when it came to the characteristics of their tasks, but overall, not the quality. Except for Simone who had her practical work experience days in Germany at a supermarket and had to perform hard work that even caused her backpain, those who did their practical work experience days in Austria mostly had to perform menial tasks. Adarsh had to perform basic tasks at a local library

> *"(...) and in the morning I had to check out books, help people at the information desk look for books and if they couldn't find them, then hand in or borrow books when they returned them, or people who were new to the library had a new card made for them //mhmh//yes, everything actually worked out anyway, it wasn't bad" (VIE Adarsh, wave 1, p. 12, par. 136)*

Carolin mainly had to sort paper during her internship at a popular drugstore chain. Alexander who worked at a local Serbian bakery was even offered that they would just fill in his papers pro-forma. However, he declined because his teacher would check in on her students at work. Only two students – Adarsh and Lukas – reflected on whether they could see themselves in the occupation they tried out later in their future. Adarsh said the following, *"(...)now, and I could already see myself doing it as a job, not directly but part-time" (VIE Adarsh, wave 1, p. 12, par. 136).* Lukas' experience as an assistant to a cook at a retirement home even prompted him to pursue that exact same career via an internship – a career path that had remained stable across interview waves. Of all young adults interviewed, his experience was seemingly the richest.

In his practical work experience days, he learned what being a head chef entails and that is mostly administrative tasks to be performed, with some exceptions where they would have to step in in the kitchen if needed,

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> *"So, he's always in the office and does office work, so he uh does that. Printing out documents and stuff like that, then sometimes he works on letters that he gets, and he has to organize the food that they have to cook, and he also has to accept the delivery and just (pause 4) and yeah. So, I've already said his name is @@Christoph## and he fills in for people, so if it's necessary and there aren't so many cooks around //mhm// he fills in for one person and helps out." (VIE Lukas, wave 1, pp. 10-11, par. 102)*

Moreover, he learned about food storage system. He also got to know the cooking schedule at a retirement home – breakfast, lunch, preparations for next day's lunch (there is no cooked dinner). He learned how to clean the kitchen which was fun to him. He also learned how to debone fish,

> *"Yes, for example, I've now pulled out the fish's bones //mhm// which sometimes felt strange because I had to put my hand on it and then pull out the fish bones. It was like (--) popping //[laughs]// or vibrating I'd say. That was mmh funny. [laughs]" (VIE Lukas, wave 1, p. 12, par. 108)*

Alexander described his pre-vocational school experience as one characterized by many excursions and lessons aimed at exploring work in general and different occupations in particular.

During apprenticeships, young adults both work and are trained at a company as well as they are still educated at vocational schools that each have a specific sectoral focus that matches their occupation as apprentices. Alexander described his first weeks of his apprenticeship at the public railway company as follows,

> *"(...) childhood is over, now the serious stuff in life begins, but it's not really like that (laughs) //(laughs)//, which I realized later, because the first ten weeks (-) we had basic training where we learned the background knowledge we needed for work. (-) Those were the hardest ten weeks of my life because it was non-stop learning." (VIE Alexander, wave 3, p. 4, par. 35)*

Until his third year of training, his apprenticeship was split between three areas of responsibility (cashier, call center, travel office). Until the point of the fourth interview, he had only worked in the first two areas. And he did not like working in the call center because his supervisors there had little patience. At the beginning of his third year of training, he had to decide which area he wanted to stay in. Even selling tickets, which seems to be an easy position to work in has more to it than might meet the eye,

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> *"B: I just sit there and sell tickets (laughs). That's all there is to it. I: Okay, that's all there is to it. (---) B: I mean, it sounds so easy, but there's a lot you need to know because there are a thousand different tickets for a thousand different regions and so on, and you have to know all that off the top of your head. I mean, thank God we have a smart system, but it doesn't always work, so you have to be smarter than the system. So that you issue the right ticket." (VIE Alexander, wave 4, p. 13, par. 101-103)*

Alexander had also described how would make apprenticeship mistakes, such as miscalculations as a cashier, during his earlier training years. His apprenticeship is unique in that it trained him to perform work in very different areas with their own skills, ranging from memorizing ticket information to performing IT services. When it comes to social skills, especially work in the call centre requires essential social skills to cope with angry customers and sometimes even suicidal callers.

In hospitality apprenticeships, a distinction in gastronomy and accommodation jobs is useful given that the skills young adults are being trained in are vastly different. Cooking requires physical stamina and often entails physical strain. For example, at the point of the second interview, during his first year of training, Lukas' left hand felt injured/weak because of the strain of kitchen tasks, like handling pans. Training as a chef is also characterized by developing skills in memorizing recipes by heart, learning manual techniques (e.g., cutting skills), preparation work (which often causes overtime), but also some level of soft skills when cooks have to interact with customers or clients directly (Lukas also had to serve the food he prepared to the elderly people in the retirement homes he worked at). For work in accommodation, such as hotels, on the other hand, social skills are essential. Jacqueline who had started work at a hotel during the time of her fifth interview described how she often had to interact with customers directly, especially at the front desk, but also in child daycare provided at the hotel. Her apprenticeship also consisted of multiple roles in which she had been trained (front desk service, room service, childcare), meaning that her training was also quite variegated regarding skills and competences. Like many other apprentices she bemoaned unclear instructions as well as dealing with different supervisors who have different approaches and expectations of how work tasks need to be performed. Additionally, Jacqueline underscored that 'rookie' mistakes are commonplace in early apprenticeship days

"Well, I made enough mistakes //(laughs)//, so (-) I didn't just make one mistake, I made several mistakes //(laughs)//. So there (//) (laughs)" (VIE Jacqueline, wave 5, p. 24, par. 169).

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Goran who became a metalworking apprentice at the public railway company at the time of his last interview had little difficulty transitioning into his new role because he had worked in several manual labour occupations before that. He also had a trial period – a month – before he was fully taken on. In that period, he was taught in more theoretical terms the basic work tasks and techniques,

> *"So, during the trial month (/), we learned (...) [unintelligible, 1 second] about filing, drilling, and stuff like that (-) //Mhm// And we also had a lot of tests during those months (-) And (drawn out) we had to make our own (hose stick?) //mhm// (Then?) drilling and all kinds of things. Then we had to learn how to chisel, and that was (everything?) in those three months (-) because we're not yet (//). We'll start with welding and stuff this year. And we'll just start that later //mhm (-) okay // (2) yes. (3)" (VIE Goran, wave 5, p. 3, par. 33)*

> *"(3) So we talked about filing, drilling (-) then we talked about (-) what else did we have? (quietly) So about filing, drilling, um (2) calipers and tolerances and stuff (/) We got different tests (-) Because we have a folder like this (-) And there we have (-) everything there is to know about metalworking (-) and we had to learn that (-) And then we got tests (-) and so on //Mhm, okay//" (VIE Goran, wave 5, p. 3, par. 38)*

After that period, he went on to perform these tasks in practice exclusively.

Florian and Samira had apprenticeships as clerks – Florian as office clerk and Samira as industrial clerk. Florian describes his vocational school training as such,

> *"When I'm here, I'm mostly at vocational school //mhm// (-) yes, and it's just like (-) normal school, I would say (-) only more specific (-) about office administration, so you do (-) office work, what you need to do in an office(/) cash book (-) // mhm// German, English (--) office processes, so (/) computer work, business cases, cash book (-) um (-) PowerPoint presentations, just (-) everything you might need (-) in life (-) as an office clerk after your apprenticeship //mhm//" (VIE Florian, wave 4, p. 37, par. 137)*

On his typical workday, he had this to say,

> *"[...]Well, then I'll just drive to work and (-) when I get there, I'll turn on (/) so I'll go straight to my workplace, say hello to everyone and so on, then I turn on the PC, check my email, etc., to see if anything has come in that I need to deal with immediately (-), and when that's done, I go to the kitchen and make coffee (-) for the others, ahhhm (--) then I usually sit back down at my desk do whatever tasks my boss or other employees have given me, then I take care of them, then (-) um, well, then (/) at 1:00 p.m. I usually have my lunch break. Ahhm, and then I do whatever tasks I've been given and (-) then I go home again." (VIE Florian, wave 5, pp. 20-21, par. 133)*

Samira's description of her apprenticeship as an industrial clerk is somewhat similar to Florian's of what an office clerk does. About her typical workday, she said,

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> *"Then I go to work, get changed, tidy up my desk a bit, have a drink, and then, um, I start with the invoices (-) //mhm//. Um, I enter them, save them, print them out, and then I go down to, um, @@Irene##. I don't really know what she does exactly, but she does the invoices //mhm//. Ah, she does the bookkeeping (/) exactly, bookkeeping, um, then I usually have a lot of filing to do, which I organize so that I don't have to go back and forth from folder to folder all the time and open them every time // mhm// then I go downstairs to organize the files, then I have new invoices again, I do the invoices, then I get a lot of um (--) shipment notifications, which I then have to save um (-) what else is there? A lot of waybills that I have to scan, so there are a few special sheets that have to be scanned. I have to scan them, save them, and file them again, so yes (-) //mhm//. Then I have to write emails explaining why we received a reminder and haven't received the invoice yet and stuff like that (-) yes." (VIE Samira, wave 5, p. 25, par. 115)*

While there are apprenticeships that end with a higher education entrance exam, regular apprenticeships are still ideally intended for companies to train and keep apprentices within the organization.

Second chance programs are mostly intended to train young adults who have dropped out of education or training to (re-)train basic skills that afford them easier access (back) into the VET system. Their primary goal is to reintegrate young adults into regular training programs. Especially supra-company apprenticeships focus on multiple mandatory internships at different companies within an economic area with the goal of transitioning into a regular apprenticeship at one company. Benjamin describes how his second chance training program has a quite diversified training schedule which is not strictly focused on one economic or even occupational area,

> *"Each group has different group training sessions //mhm// My group is Burger King on Tuesdays //mhm//, on Wednesdays either Lidl or (-) Hotel, so we go to a hotel and do gardening there //mhm// and on Thursdays mostly Transgourment (--)" (VIE Benjamin, wave 4, p. 8, par. 70)*

It has a trial, a practicing, and a specialization phase. Benjamin discussed that the transition from practising phase to specialization usually takes three to four months.

As opposed to second chance programs and apprenticeships, intermediate VET schools (BMS) usually have more emphasis on schooling with a separate period of the year (often summer holidays) dedicated for practical experience via mandatory internships. Cedefop puts the share of work-based learning in Austrian intermediate VET schools at 40%, while the share in apprenticeships is estimated at 80% or higher (cedefop & ibw Austria, 2022). While many subjects are just the same as in academic secondary schools, there are some subjects

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that are useful for clerk jobs at businesses. Nicole, for example, discusses the subjects "Business Administration & Accounting" and "Office Management and Applied IT." Nesrin who attended a Secondary School for Economic Professions with a focus on healthcare described additional subjects that are related to healthcare such as "Practice and Patient Management" where they learn competences in patient management and can earn certain certificates (cf. HLW 10, n.d.). Even in her intermediate VET restaurant management school, Carolin has "Office Management and Applied IT" as a subject. However, they also have some subjects that are more specific to restaurant management – both from the business perspective and the operational perspective. Just like some apprentices she also described difficulties in adjusting to different expectation depending on each teacher, which she realized after she got a new cooking teacher,

> *"// Everything is different with this cooking teacher. (-) Tablecloths, different. Mise en place, different. //mhm// Hm (drawn out) and she gives me a minus for that. I can't help it if I'm just repeating what I learned before for this year. //mhm, okay// Just because she does it differently." (VIE Caroline, wave 3, p. 13, par. 28)*

Carolin's school offers two branches – one more focussed on social aspects, the other more on business aspects. After choosing to move on to the advanced training cycle at her school, which is equivalent to higher VET, Carolin had to add the social branch after previously following the business branch in her three-year intermediate VET cycle. Despite her schools focus on restaurant management she could do one of her mandatory internships as an office clerk. Adarsh who visited an intermediate VET school for IT also had regular school subjects as well as ones specific to IT competences – e.g., subjects on graphic design and database systems. They are both organized around theoretical and practical aspects of skills to be acquired. (insights from Caroline, waves 4, 5 & Adarsh, wave 3)

Higher VET schools (BHS) have the lowest estimated work-based learning share at 30% (cedefop & ibw Austria, 2022). However, in-school learning is highly specialized and thus demanding, and the expectation is for graduates to become highly skilled in their respective areas of expertise. The level of occupational specialization is arguably the highest in higher VET schools. Simone attended the Higher Federal Graphic School and Research Institute, which also serves as a testing site for companies, hinting at the fact that most higher VET

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schools have strong ties to their respective industry and how some even supply companies with R&D infrastructure or test their R&D products.

> *"So, basically, Heidelberg gives us machines for free, and we also have a pretty new machine – a cutting machine from Heidelberg's final production line – because sometimes we even get ones that aren't even on the market yet; they give them to us for testing." (VIE Simone, wave 4, transcript 2, p. 16, par. 79)*

She really likes workshop classes where they learn about screen printing in practice. However, the theoretical classes bore her. Often, they can even work more autonomously. In her last, year she described how all-encompassing learning at a higher VET school can be, especially in the final year where you have to conduct a self-administered project, *"So (--) basically, most of my last year consisted of this project." (VIE Simone, wave 5, p. 4, par. 22)* Compared to intermediate VET and apprenticeships, higher VET is very detailed in the way students ought to learn skills, which Simone highlights through her deep knowledge about the technological equipment she uses at school and by the depth of her description of practical tasks she performs at school. Moreover, the demanding education is also highlighted by the fact that her school days are usually very long.

Higher VET for social pedagogy, on the other hand, has less of a technological focus. The learning revolves around the subjects Lena described as "Practice" and "Didactics" where they learned about didactical concepts more theoretically.

> *"Didactics is a pain in the ass – I should've known that last year (laughing) um (-) the study of educating and being educated // Hmm... // You basically learn about methods for working with children and teenagers (-) Um, about the different aspects of play and so on and so forth, and the practical component is basically the (-) practical application of didactics, though we're still very theory-heavy in our work right now." (VIE Lena, wave 4, p. 2, par. 27)*

They also had a practice daycare and in their second year they had to do an internship at a 'real' daycare facility. Lena described the focus of her school as practice-oriented with an emphasis on multiple internships revolving around integration and inclusion. Unfortunately, Lena did not elaborate about her school in more detail as Simone did.

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Discussion

This report focuses on how VET students and recent graduates perceive professional knowledge and account for their own decisions in Barcelona (Spain), Sofia (Bulgaria), and Vienna (Austria). This information is indispensable to complement public sources of statistical data about skills intelligence and significantly broadens ongoing debates on the outcomes of VET.

A comparative analysis of the responses from a sample of interviewees in each city has proven highly effective in double-checking the extent to which the official skills intelligence dashboard constitutes a reliable source of information. Overall, the underlying conceptualisation of the selected indicators closely links knowledge to the matching of individual skills with employers' needs and portrays individual strategies as steps along a linear progression. However, these two notions appear overly reductive when the students and graduates are interviewed about their experiences (see Figure 7).



Figure 7 Skills match versus lived experience

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Learning environments and professional knowledge

The notion of matches and gaps between individual skills and employers' needs does not adequately capture the key nuances of the institutional, pedagogical, and technical environments of learning. VET students' everyday experiences resemble navigation in uncharted territory rather than a gradual progression along a one-dimensional scale of skills.

In Barcelona and Vienna, interviewees framed learning environments and skills development within their biographical trajectory in the education and training systems as well as in the labour market. Three themes emerged from these interviews. First were supportive teachers (BCN Núria; SOF Georgi and Kaloyan; VIE, Alexander and Carolin). Such helpful support derived from satisfaction with a particular subject and teachers' receptive attitudes to know about their concerns. Comfortable feelings with the chosen programme made the second theme, at least in Barcelona (BCN Laura and Jordi) and Vienna (VIE Lukas, Carolin, Lena, Jacqueline, and Goran).

The third theme derived from the synergies between work experience and further engagement with VET. In Barcelona, several interviewees reported having benefitted from a growing range of courses to change occupation. Some adult learners had taken advantage of clear-cut definitions of skills in the fields of energy and IT. In this way, one had gained professional qualifications in domestic gas, electrical, and water system repair (BCN Oriol). Such explicit classification had also helped other students to learn mechatronics in order to advance in their previous careers in car-manufacturing, energy, and logistics (BCN Oriol, Raül). Although the direct correspondence was less evident in the service sector, an adult woman considered that her previous customer- facing experience would help her work as an auxiliary nurse (BCN Paula).

At the same time, a significant number of students and graduates reported negative biographical experiences, although the groups of satisfied and discontented interviewees overlapped insofar as some expressed both types of feelings. In Barcelona (BCN Nil, Oriol, Sílvia, Hugo) and Vienna (VIE Nicole, Carolin, Jacqueline), expressions of discontent often reflected issues related to misconduct at school. Additionally, frustration with teachers who

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viewed academic weakness as a personal failing, along with complaints about difficulties in finding a suitable course, were common among discontented students. Some students had disengaged from education because they had felt mistreated in the less prestigious tracks of secondary education, with some female respondents denouncing gender biases in certain specialties.

Uneasy reactions were much more widespread in Sofia, where many interviewees declared that the curriculum of VET schools was completely outdated. While schools appeared to use old tools for medical treatment SOF Daniela and Maya) and software development (SOF Stefan, Boris, Deyan), a sharp difference between theoretical lessons and practical activities aggravated the uneasiness of students. In the tourism sector, some respondents (SOF Denitsa, Kaloyan, Mirela) also expressed discomfort for the same reason.

The notion of an alleged equilibrium between skills and needs does not either capture how students understand technical knowledge. That linear concept sidelines crucial aspects of cognitive and emotional engagement that are specific to different occupational specialisms.

When discussing skills, the interviewees involved in the hospitality sector highlighted technical skills such as cooking (BCN Laura, Sergi), using digital tools to manage reservations (VIE, Carolin), and notably, multitasking (BCN Laura, Adrià, Noa, Gerard). In the view of these students, professionals had to complement these technical skills with such soft skills as entrepreneurship (BCN Noa) and the ability to read the implicit conditions of the workplace correctly (BCN Alba, Gerard).

IT and digital VET programs triggered interest in both technical and social skills. Among our interviewees in this sector, several reflections revealed a combination of cognitive engagement and emotional responses to mastering screen printing, meeting like-minded people at hackathons (SOF Stefan), exploring the potential of AI, carrying out self-administered projects (Vienna, Simone), and working with programmable logic controllers and cyber-security alongside a team of colleagues (BCN Albert, Raül, David). Several graduates also highlighted the need to understand organisational hierarchies and demonstrate work readiness (BCN Hugo).

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Although graduates and students in energy- related occupations were also focused on technical skills (BCN Nil), notably some of them also transcended the scope of mere technical expertise. These views normally reminded of the importance of energy and water management for the well-being of people (BCN Oriol, Pol).

In Barcelona, the large sample of recent graduates in health services was instrumental in observing how they articulated both a technical and an integrative orientation towards professional knowledge. On the technical side, they aspired to master professional skills such as providing oral hygiene, conducting tissue and histological analyses, inserting IV lines, repositioning fragile patients, cleaning wounds, administering medication to elderly patients, and designing action plans for patients at risk of social exclusion (BCN Anna, Gemma, Pau, Marc). On the other hand, all of them had learned that their expertise ultimately relied on improving people's well-being, which, in their view, required empathy and the personal capacity to manage emotional relationships.

But the importance of social skills in these professions also generated negative reactions. Thus, in Barcelona, some reported having quit front-line roles because they felt overwhelmed by the demands of care work (BCN Gerard, Sílvia). In Sofia, many complained of inadequate training with outdated equipment, which limited their ability to perform effectively (SOF Daniela, Iva).

Students' and graduates' decisions and plans

The official discourse conceptualises the trajectory of VET students of different ages as a linear progress from basic skills towards higher vocational level through "upskilling pathways." However, this account establishes a contrived hierarchy on two distinct modes of reflexive thinking about individual projects.

The official policy rationale assumes that vague and adaptive reflexive thinking is often the approach of very young students, who evolve toward detailed and prospective reflexive thinking over time. A crucial finding of project AIVET is that this perspective overlooks empirical evidence and important challenges of VET policy. The point is that neither it

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properly considers the long-term dilemmas of linking higher VET and higher education not it is aware of the impact of geography.

If policymakers stick to the belief that young students and adult learners simply make their mind and enrol in a prescribed programme at some point, they are likely to overlook future needs of flexible options that allow middle-aged learners to balance work, family, and education. The current priority on enrolling basically young students is not sustainable in aging societies that receive immigrants of several ages. Education and training systems can develop pedagogical and technical methods to teach disciplines and occupational specialisms in a more flexible way, but it is necessary to pilot innovative trials and conduct rigorous programme evaluation to design the curriculum, the pedagogy and the internships of future vocational education and training systems that are meaningful for diverse young and adult learners.

At face value, vague and adaptive understandings of education and training options seem a deviation from the social norms rooted in notions of long school life experience and upskilling. But in our interviews these views were simply an expression of quite common reflexions on individual biography. Several interviewees were not rejecting further education and training but postponing decisions that were inappropriate at the time of the conversation. Some graduates regretted emotional fatigue from health care and thus a need to look for alternatives (BCN Sílvia), while others reported how they had moved from one specialty to another one successfully (BCN Gerard, SOF Georgi).

Certain dilemmas reveal that the transition from higher VET to higher education posited a crossroads for some students, who did not know how to cope with the academic standards and the opportunity costs of longer study periods in a university (BCN Paula; VIE Adarsh). Geography might be a further source of stress as far as migrants sometimes must travel back suddenly for unexpected events or simply because global cities become a hostile environment for some youths (VIE Selina, Jacqueline).

In contrast, the official stance celebrates detailed and prospective readings of education and training options, which seem to clarify the role of educators, counsellors, company tutors,

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human resources professionals and other stakeholders of collective skills formation arrangements. Although the examples of these individual strategies are abundant, their very diversity is indicative of an aspect that does not fit within a one-dimensional hierarchy either. The students and learners who pursue these strategies do not fully identify with statistical targets that posit upskilling. In the interviews, they emphasized vocational calling rather than social mobility to more prestigious occupations.

Step-by-step progress was as important as an appealing specialism for a few of them, who expected to find a permanent job after higher VET and then enrol in further courses (BCN Sergi, VIE Samira). One described how a professional certificate had helped him become a plumber and then enrol in a tertiary-level VET programme on mechatronics (BCN Nil). Some aimed at gaining one of the growing jobs in associate health professions (BCN Alba; SOF Daniela). A student of a higher VET programme in cooking wanted to work in restaurants in different countries before setting out one's own business (BCN Adrià). Some youths thought of leaving a country for lack of learning opportunities (VIE Nesrin). Certainly, despite careful consideration of a strategy to improve their social position, all these students framed their future career within some specialities that were somehow appealing to them.

On the other hand, several interviewees were very explicit about vocational calling. A Bulgarian young man had endeavoured to meet professionals in hackathons once he had realised that schools did not catch up with technological innovation (SOF Stefan). A Viennese student had explored her opportunities until she had chosen a design programme in the Media Makers Day (VIE Simone). Straightforward references to intrinsic motivation regardless of economic returns were also abundant. Learning about tissue analysis (BCN Gemma), reaching self-fulfilment by overcoming gender biases in masculinised occupations (SOF Maria) or looking for training in energy in according with incipient interests during childhood (SOF Nikolay).

The analysis of these sources reveals that skills intelligence does not fully capture two important aspects of students' experience. One is that occupational specialisms are structured bodies of knowledge. In Barcelona, Sofia and Vienna, our interviewees realised that knowledge is organised in a hierarchy of educational levels but also that different fields of

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expertise require different skill sets. Skills are not only ranked along lower and upper secondary and tertiary education but are also articulated differently in the health, hospitality, and IT specialisms. Key knowledge varies among these specialisms, for instance, it consists of a balance between technical skills and empathy with patients in health, flexibility to simultaneously perform in cooking and restaurant management, or ability to master well-defined technologies as well as some intrinsic satisfaction with this type of expertise.

Another often-overlooked aspect concerns the actual scope of choice available to VET students and recent graduates. While progression from lower to higher levels is important, many students do not make such decisions based on a narrow set of considerations. A significant group of respondents sought to align their prospects with a sense of vocational calling when formulating plans to improve their social position; for some, this vocational calling was explicitly more important than social mobility.

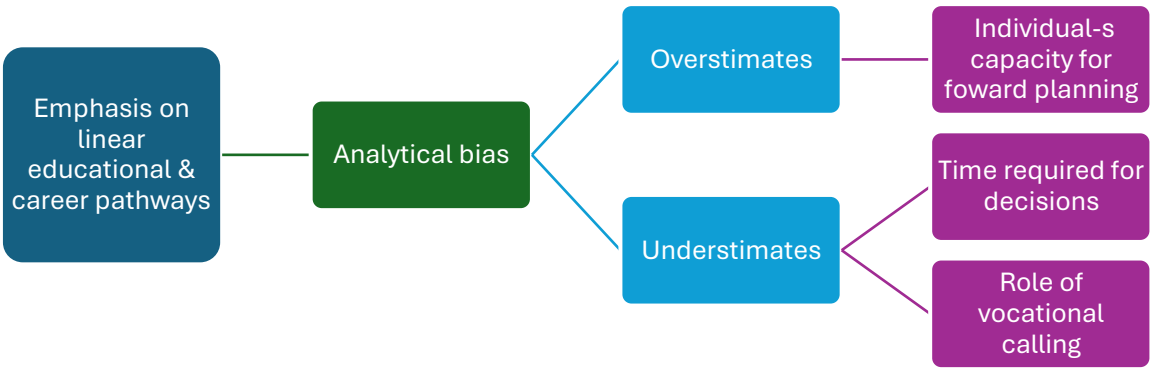


Figure 8 Imbalanced assumptions.

Lessons Learned on Intelligence about VET in Barcelona, Sofia, and Vienna

The analysis presented in this report highlights a structural limitation in current approaches to skills intelligence, particularly as operationalised through instruments such as the CEDEFOP

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(2025) dashboard. While these tools aim to support evidence-based policymaking, they ultimately fall short of closing the feedback loop between education systems and lived professional experiences. This is primarily because the existing set of indicators does not adequately capture the diversity of professional knowledge nor the full range of strategies that learners and graduates deploy in navigating their careers.

Two key conclusions emerge from this finding.

First, widely used classification and monitoring frameworks—such as ISCED, qualification frameworks (QF), and prevailing notions of skills intelligence (SI)—offer only a partial representation of professional knowledge. Their emphasis on identifying skills "matches" and "gaps" is effective in highlighting technical competencies, particularly in relation to innovation cycles in STEM-related occupations. However, this perspective overlooks qualitatively distinct modes of knowing and working. It fails to account for transversal capacities such as multitasking, contextual judgement, and the nuanced interplay between technical expertise and value-based commitments. As a result, important dimensions of vocational competence remain invisible in policy discussions, limiting the capacity of VET systems to respond to complex and evolving forms of work.

Second, policy instruments designed to promote skills development—such as upskilling initiatives, youth guarantee schemes, and individual learning accounts—risk being conceptually and operationally constrained when tightly aligned with short-term objectives. By privileging immediate labour market insertion or rapid skill acquisition, these frameworks underestimate the temporal dimension of career development. The evidence presented in this report shows that individuals' strategies are often adaptive, iterative, and shaped by personal motivations, experimentation, and vocational calling. Effective skills policies must therefore recognise that meaningful professional trajectories require time, flexibility, and opportunities for reflection, rather than solely rapid alignment with current labour market demands.

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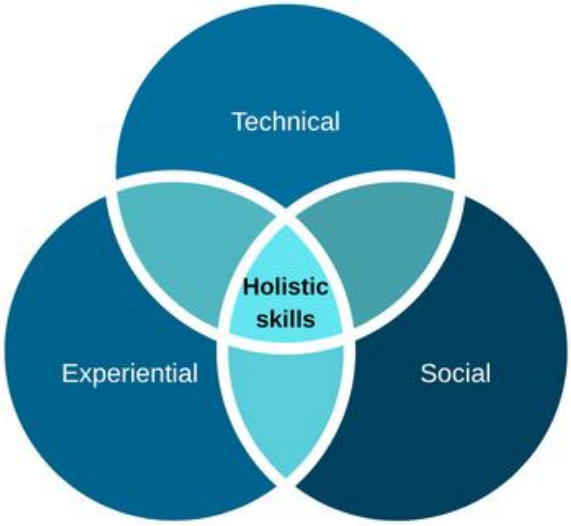


Figure 9 Integration of skills Dimensions Responsive & Inclusive VET systems

These conclusions call for a rethinking of how skills intelligence is conceptualised and measured. A more comprehensive approach should integrate qualitative insights into existing monitoring systems and acknowledge the diversity of learning pathways and professional identities. Only by doing so can VET policies more accurately reflect the realities of learners and better support sustainable and inclusive career development.

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ANNEX I. Information Letter

The interview is part of the Erasmus + *Cooperation Partnership 2023-1-ES01-KA220-VET-000153882* (AIVET) research project, in which we study the local labour markets of VET graduates in Barcelona, Sofia and Vienna. For more information, visit https://www.aivetproject.eu/

What are the benefits of participating?

Your participation in the interview will help us to better understand the skills and competencies that are needed in the Barcelona job market.

Who can participate?

We invite students who have graduated from training cycles related to energy, health, tourism, and ICT.

How is the interview conducted?

We will conduct the interview in a semi-structured way with a set of fixed topics, but flexible enough to delve into any aspect that we want to highlight. All the information you provide will be treated and communicated confidentially so that your identity cannot be connected, at any time, to the answers you give in the interview. We do not ask for or store your name or contact information. The interview will last approximately one hour. With your permission, the interview will be recorded and subsequently transcribed in writing.

Is participation voluntary?

Participation in the study is completely voluntary. You can refuse to participate, suspend your participation, or withdraw consent you have already given without reason at any time during the study without any consequences. No remuneration is paid for participation in the study.

How will the interviews be used?

The interviews will be recorded, transcribed, analyzed, and summarized exclusively for research purposes. We ask for your consent to include quotes from the interviews in communications at academic conferences and in activities to disseminate the project. In these appointments it will not be possible to identify who has given any opinion.

How will your data be protected?

All data collected in this study will be treated as strictly confidential and will be treated in accordance with the General Data Protection Regulation (EU) 2016/679 (GDPR) and relevant national data protection laws. Special attention will be paid to data security and retention, ensuring that all information is stored and managed properly. Researchers will adhere to the terms indicated in the consent form attached to this invitation to the interview.

Non-anonymous data, such as original audio recordings and transcripts, will be securely stored and managed using UAB One Drive, a local server-based application used for shared data management and collaboration within the AIVET research project. Access to this data will be strictly limited to authorized members of the

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AIVET Consortium. Interview data will not be shared with third parties without explicit consent, unless required by law.

Participants have the right to access, rectify, restrict, or oppose the processing of their personal data for the duration of the study. If you wish to exercise these rights, please contact the AIVET research project manager (see contact details below).

This study has been reviewed and approved by the UAB Research Ethics Committee, which has considered it in accordance with the ethical and safety standards for the purposes of the project.

Where can I find more information?

For more information, please contact the UAB research team:

- Xavier Rambla: Xavier.rambla@uab.cat +34 93 581 2421

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ANNEX II. Informed consent for the interview

Title of the research project

We would like to invite you to participate in an interview conducted for the Erasmus+ Cooperation Association 2023-1-ES01-KA220-VET-000153882 (AIVET), in which we study the local labour markets of VET graduates in Barcelona, Sofia and Vienna. For more information, visit https://www.aivetproject.eu)

Please read this consent document carefully before deciding whether you want to participate in the focus group.

Objective of the research

The AIVET project aims to analyse different types of information that can support the design of vocational training (VET) programmes in European urban contexts. It examines VET systems and labour market information of graduates in Barcelona, Sofia, and Vienna to facilitate well-informed strategies. In addition, AIVET will develop an artificial intelligence (AI) tool to strengthen information systems for VET by improving the collection, analysis, and comparability of data on VET graduates' work outcomes. The project also investigates the educational and career trajectories of VET students, considering socio-economic, gender and background factors to identify inequalities and opportunities in access to employment.

Implications of participation

We will conduct the interview in a semi-structured way with a set of fixed topics, but flexible enough to delve into any aspect that we want to highlight. All the information you provide will be treated and communicated confidentially so that your identity cannot be connected, at any time, to the answers you give in the interview. We do not ask or save your name or contact information. The interview will last approximately one hour. With your permission, the interview will be recorded and subsequently transcribed in writing.

Duration

The interview will last approximately one hour.

Risks and benefits

We do not identify any risks arising from participation in this interview, which will help us to better understand the skills needed in the Barcelona labour market, and thus to better design VET policies.

Compensation

No compensation is foreseen for participating in the project.

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Confidentiality

If you decide to participate, your identity will be kept confidential and only members of the research team will have access to the data generated. If it is necessary to present case studies, these will always be done using pseudonyms.

The principal investigators will keep this informed consent in a secure place and destroy it five years after the completion of the research. When the study is complete and the data analyzed, the entire database will be anonymized and available to other interested researchers.

Voluntary nature of participation

Participation in this interview is completely voluntary. There is no penalty for not participating.

Processing of personal data

The conduct of this interview implies the processing of your personal data by the research team of the Universitat Autònoma de Barcelona for the purposes described in this document and based on your consent. The team responsible for the research will not share personal data with third parties and will not be subject to international transfer. The processing of your personal data does not involve automated decision-making or predictive profiling of personal preferences, behaviors, or attitudes.

The research team will keep personal data for the time necessary to carry out the project.

You have the right to withdraw from the study at any time without the need to give explanations and without negative consequences; you just need to let us know by any means.

You can also exercise the rights recognised by European data protection legislation by writing to the person responsible for data processing, Dr. Xavier Rambla (xavier.rambla@uab.cat), including your application form and a copy of your identification document (DNI/passport).

The forms for exercising these rights are available on the UAB Data Protection website (https://www.uab.cat/web/coneix-la-uab/itineraris/proteccio-de-dades/drets-de-les-persones-interessades-1345764799916.html).

You also have the right to lodge any complaint with the Catalan Data Protection Authority (https://apdcat.gencat.cat/ca/contacte), and whenever you consider it necessary you can contact the UAB Data Protection Officer (proteccio.dades@uab.cat). In any case, you will receive a written response within the legally established period.

Publication/reuse/other processing of basic data and data retention period

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The research data will be available to other researchers in anonymous format after five years have passed since the end of the project. Information that can facilitate the identification of individuals will only be kept for the duration of the project. Once this period has ended, all non-anonymized data will be securely deleted.

The anonymised data will be kept for at least ten years, i.e. between 2025 and 2035.

Consent

__Estic agree that the interview is recorded in audio and/or video.

__Estic agree that verbatim quotations from my speeches should be used without mentioning my name.

__ I agree that my audio or video recordings will be used for scientific communication purposes as long as the necessary measures are taken not to reveal my identity.

Contact person

If you have any questions, you can contact: Dr. Xavier Rambla: xavier.rambla@uab.cat +34 93 581 2421

I have read the information about the research project and have had the opportunity to ask questions that have been satisfactorily answered.

I understand that the information, which will be anonymous (without personal identifiers), from this project will be available to other researchers after the project is completed.

I agree to participate in the discussion group and have received a copy of this consent.

Full name of the participant_____

Date _____ Date: _____

Researcher:

Date _____ Date: _____

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ANNEX III. Interview script with vocational training graduates.

I would like to talk about your training and your job prospects. I will ask some questions, but to answer them you can expand as much as you want.

What do you remember about your experience at school?

Follow-up questions about changing schools, changing school types (e.g. from academic secondary to vocational training), changing school itineraries, experiences with teachers, difficulties with teachers, violence at school, bullying at school

What are you studying now? Why did you choose these studies?

Follow-up questions about knowledge of available programs, job prospects, satisfaction, learning, internships.

Can you describe your work experience if you have already had a job?

Follow-up questions about good and bad work experiences, satisfaction, change of job/training company/others

What do you need to learn to perform well in your specialty?

Follow-up questions: describe tasks, relevant theory learned in the VET programme, informal knowledge, communication, organisation, self-regulation.

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