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Escape 2 Stay

Escape to Stay - make VET your first choice

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Intellectual Output 1

Preparation for White Paper

"What makes vocational training attractive?" - Improving the image of VET with effective educational Escape rooms

National Report AUSTRIA

February 26th, 2021
prepared by Verein Auxilium

SCAN ME

Inhalt

1. Introduction: Why escape rooms for vocational orientation? What are we talking about (definitions of Escape rooms and vocational orientation)

Vocational education and training (VET) is a specific form of education, where young people are undergoing training in a certain profession. VET can happen in a classroom setting, in hands-on practice or – as in some countries – in the form of a dual system. In a dual VET system, phases of learning in a VET school alternate with phases of work-based learning in a company.

Escape rooms are a particular form of entertainment event, in which a group of people is locked in a room and have to solve puzzles and riddles to get out. A game master is available to provide hints if necessary and release them in case of emergency. Escape rooms have gained popularity in the 2010s and since then, the game format is also available as mobile/gaming applications, board game variations, and books.

The attractive element of escape rooms for VET is that players have to demonstrate a variety of skills and knowledge to solve the game successfully. This can on one hand assess the competencies the players possess as well as make the player aware of their potentials. On top of that the escape games are fun and are a memorable experience as the success has an empowering component as well.

2. Data collection: How was the research performed? Procedure and participants?

The desk research was performed by Verein Auxilium using online sources. The focus groups were implemented online using the Zoom platform. Below, the information of participants are listed:

2.1. Information on the composition of the group

Person Code	Sex	Diploma	Background	Org. Type
A	F	MSc.	Escape room specialist since 2016	Escape room building https://www.gamesinstituteaustria.org/index.html
B	M	Literature Science, Techer	Escape room specialist since 2016	Escape room building https://www.gamesinstituteaustria.org/index.html

C	M	Language Science, HR	VET company and VET provider	Large VET training centre in the region of Steiermark
D	M	Education Sciences	VET and general education provider, didactical expert	VET and general education training centre, managing director
E	F	Education Sciences	Education Science, AR/VR developments in education	Expert in educational sciences for school and further education, use of AR and VR applications in educational settings
F	M	Language Studies, MSc	Apprenticeship training responsible in large production company	Car industry, automation and research

2.2. More information about the participants:

Tasks related to vocational orientation or attracting students to VET or Escape rooms

A: Conception, design & implementation of Escape Rooms (F2F, online) Erasmus+ Project: Games in Basic Skill Teaching (since 2018) Tool: GIST – Competence assessment – digital games to see people act competent, to work cooperatively and to assess relevant vocational skills in a serious gaming context

B: has started the organisation “Game Institute“ after being a teacher. He worked his whole life towards this topic of educational aspirations inside gaming. Started his company in 2015/2016.

C: has been working in education for the last 20 years, also worked abroad in the field of HR and corporate training, since 2016 he has now been working as general manager of one of the largest VET training centres in the region of Styria, providing VET programmes for young students, development of didactical approaches etc. is the core business, also the setup and management of the Talent Center Steiermark is in his responsibility

D: has been working in education in the last 30 years and for the last 20 years has been working as general manager of a larger VET and general education training centre in the south of the region, huge expertise in guidance and orientation for younger and older target groups as well as the use of modern technology in training

E: working in the field of modern didactics in VET and general education, has done research mainly about the use of AR/VR technology in education over the last five years and also been involved in some international co-operation and research projects in this field.

F: working as HR responsible in a large car industry support company in Graz, about 100 apprentices permanently working in VET programmes, training and key note speeches about attractiveness of VET programmes and technical professions

Years of working in your field relevant for the project topic

A: 5 years ago

B: 10 years ago

C: 10 years ago

D: 20 years ago

E: 6 years ago

F: 15 years ago

Key tasks of your organisation and number of employed persons

A: development and provision of escape room games, 3 persons

B: development and provision of escape room games, 3 persons

C: VET training, 120 persons (about 20.000 learners each year)

D: VET and general education, 15 persons (and an additional number of 200 freelance trainers)

E: research and development in educational didactics, AR/VR application in education, 15 persons in the department

F: research and development for car industry and automation, more than 10.000 employees in Austria, about 25.000 worldwide

3. Findings Desk research part 1: Vocational education and guidance

3.1 Short overview about VET, acceptance of VET (numbers) and which professions are in demand in general, and in particular of technical and ICT professions?

Throughout Austria, compulsory school education is up to the 9th grade, whereby after the 8th grade pupils can already choose between a vocational and a general education pathway. Within vocational education, there is again the possibility of taking different initial vocational education paths.

Vocational education can be completed through vocational school in form of a dual education training (apprenticeship. In German: Lehre/Lehrausbildung), or in a full-time school such as school for intermediate vocational education (in German: Berufsbildende mittlere Schule – BMS) or college for higher vocational education (in German: Berufsbildende höhere Schule – BHS). There is also a special vocational education available for people with disabilities (OeAD 2021; BMBWF 2021a).

In general, vocational education has a very high level of acceptance in Austria, as it has a high social and economic status in the country (Dorninger, Gammlinger 2019:67).

In the school year 2018/19 around 76% of all pupils in the 10th grade in Austria attended a vocational school. Most of them opted for a dual education training (37%). Around 26% chose the college for higher vocational education (BHS) and 13% attended the school for intermediate vocational education (BMS) (Dornmayr, Nowak 2020:103). In Styria, around 45% of all pupils from all school levels attended a vocational school in the school year 2017/2018 (BMBWF 2021b).

In 2020 the most common occupations in Styria that were performed through dual education training were: 1. metal technology, 2. retail trade, 3. electrical technology, 4. automotive technology, 5. installation and building technology, 6. office clerk, 7. mechatronics, 8. carpentry, 9. Hairdresser/stylist, 10. cook (WKO 2021a).

Therefore, there were 2.519 apprentices in training in the occupational field of “information and consulting” throughout Austria, which corresponds to 2,3% of all apprentices in Austria. Of a total of 108.416 apprentices in Austria, 15.323 apprentices were in dual education training in Styria. Of these, 2,1% are in the field of "Information and Consulting. In the occupational area of industry, 16.389 pupils were in dual education training throughout Austria, which corresponds to 15,1%, which is 18,6% of all apprentices in Styria (WKO 2021b; WKO 2021c).

In general, ICT secures around 290.000 jobs in Austria. According to various reports, there is a great deal of upward potential. In particular, the areas of microelectronics, software technology and e-governance are in high demand and are generally supported in Austria with various funding initiatives (Bieber 2019).

3.2. Short overview about advantages of VET compared to other educational pathways? "Fun" part of VET pathway? Misconceptions about VET? Are there professions in the technical and ICT sector which are not perceived as very attractive and why? (very important topic!!) -> Which concrete occupational profile or group of profiles or sector should be focus on with the later Escape room setting?

Vocational education in Austria dates back to the Middle Ages and has a very high acceptance in Austrian society. The Austrian economy tries to recruit skilled workers from apprenticeship training, VET schools and colleges or train them itself. According to the OECD Country Report (2016), VET in Austria ensures direct access to the labour market. Therefore, it is highly attractive for pupils and offers several advantages (Dorninger, Gamlinger 2019:15; Dorninger, Gamlinger 2019:69).

Completing a dual vocational education training program has many advantages. Apprentices can complete an apprenticeship under the conditions of real work life. They receive their theoretical input at vocational school and the practical elements can be applied or tried out right away at the workplace. Employers can retain the apprentices as qualified specialists after they have completed their dual vocational training. In order to keep the dropout rate as low as possible, the employer and the vocational school should constantly support and motivate the apprentices during their training. As a learner, especially before starting vocational training, the examination of one's own strengths and weaknesses is crucial for the right choice of vocational education training to be able to fulfil one's own motivation and the fun factor in vocational education training (BMDW 2019:8).

A big misunderstanding regarding vocational education training is that after vocational training a continuation in the form of higher vocational training is necessary. Apprentices are not obliged to complete higher vocational education after the apprenticeship in form of apprenticeship with "Matura" (high school certificate) or apprenticeship with a bachelor's or master's degree. A basic education is quite sufficient, but it is very welcomed if apprentices are interested in further training to stay updated with the latest developments (ODEC). According to reports, the profession of IT-specialist is one of the most promising jobs in Austria. The fields of big data, robotics, IT engineering, IT support, software engineering, web development, automation and artificial intelligence are in high demand (Gruber 2016; IWI 2020). According to a survey by the Austrian Economic Chamber (WKO) in 2020, 18% of Styrian companies did not have enough IT specialists. There is an increased shortage in the areas of software engineering and web development. Companies criticize the lack of expertise and social skills of job seekers (IWI 2020:51; WKO 2019).

The trends in digitalisation also confirm a high demand in these areas. In addition to subject-related skills, such as basic knowledge in the field, mathematical and statistical understanding, the demands of social competencies, the so-called soft skills, gain an increasing importance. According to a study by LinkedIn (2017), knowledge management, analysis and interpretation skills, project management, change management, business management, general digital skills, and an understanding of programming are particularly in demand. In terms of soft skills, especially cross-functional skills, conversation and negotiation techniques, team and employee leadership, critical thinking skills, intercultural skills, decision-making skills, entrepreneurial spirit, presenting and public speaking and creativity should be brought along. These competencies are also strongly required in the IT sector (Presseportal.de 2017; IWI 2020:69). Due to technological progress and globalisation, these competencies are very

helpful and recommended in all sectors. In this respect, all sectors can benefit of the escape room setting, as various competencies can be practiced and tested.

3.3. Common understanding/national definition of vocational guidance and orientation?

In Styria, educational and vocational orientation (in German: **B**ildungs- und **B**erufs**o**rientierung; BBO for short) is a lifelong process of convergence and coordination between the interests, desires, knowledge and skills of the individual on the one hand and the opportunities, needs and requirements of the working and business world on the other. Both sides, and thus also the process of vocational guidance and orientation itself, are characteriszed by constant social, economic, technological and social change processes (Bildungs- und Berufsorientierung – Landesgremium Steiermark 2017:4). This process begins in early childhood and accompanies young people beyond their school years and into adulthood (Land Steiermark 2021a).

3.4. National and/or regional policy on vocational orientation and guidance (or career guidance) – any official guidelines?

In Styria the "Styrian Strategy for Educational and Vocational Guidance (BBO Strategy)" provides the framework for all development processes in the context of educational and vocational orientation and guidance and is guiding and binding for the whole federal state. The strategic considerations are based on eight objectives and focus on the following four fields of action: "mainstreaming", "planning, evaluation and monitoring", "quality development and assurance" and "educational and vocational guidance in all phases of life" (Land Steiermark 2021b). For the school sector, the legal foundations of the Austrian Federal Ministry of Education, Science and Research are also guiding principles, which promote measures for educational and vocational orientation in schools within the framework of the concept called "ibobb: Information, Counselling and Orientation for Education and Careers" (in German: **I**nformation, **B**eratung und **O**rientierung für **B**ildung und **B**eruf) (BMBWF 2021a; BMBWF 2021b).

At regional level, the Central Region of Styria pursues the support of educational and vocational orientation and guidance as one of the priority goals of the “Regional Development Strategy 2020+” under the guiding theme "Promotion of social participation + lifelong learning" (Regionalmanagement Steirischer Zentralraum GmbH 2019: 49-54; Regionalmanagement Steirischer Zentralraum GmbH 2020).

In the context of project funding in the area of educational and vocational orientation and guidance, in Styria, in addition to the BBO Strategy, reference is also made to the “Guideline for the Granting of Funding by the Province of Styria with Regard to the Strategic Orientation and Development Perspectives of Adult Education/Continuing Education in the Framework of Lifelong Learning in Styria LLL Strategy 2022” (Land Steiermark 2021c).

3.5. Target groups of vocational guidance (for VET)? To which educational level can they be assigned?

Educational and vocational orientation and guidance in Styria aims to create offers for all phases of life and to understand these as lifelong vocational orientation (Land Steiermark 2021b). Offers in the Central Region of Styria are thus aimed at children and adolescents and their parents as well as at adults (Regionalmanagement Steirischer Zentralraum GmbH 2021a). Educational and vocational orientation and guidance offers, which especially concern vocational education and training (VET), are mostly aimed at adolescents in the 8th or 9th grade (Regionalmanagement Steirischer Zentralraum GmbH 2021b; AK Steiermark 2021; Sozialministeriumservice 2021; LOGO jugendmanagement gmbh 2021). Within the framework of the "ibobb" concept of the Austrian Federal Ministry of Education, Science and Research, career orientation is already being promoted for pupils from the 7th grade onwards (BMBWF 2021a).

3.6. Responsible actors in vocational guidance and orientation; other actors who could benefit from the projects' Escape room settings? How could they benefit?

With the help of an escape room setting, many competencies and skills can be made visible. Especially social competencies in the sense of teamwork and adaptability, communication skills, but also analytical understanding, problem-solving and creativity can be shown. Career counsellors can see different skills in a practical way from the escape room procedure and the participants themselves can get to know and strengthen their own competencies in connection with a great fun factor.

In addition to gaining and getting to know different competencies, the escape room setting, depending on the preparation, can also be used to repeat and reinforce specific knowledge. Companies can also take advantages out of it. Group dynamic processes between their employees are recognisable and they get to know and evaluate the skills of their (future and potential) employees. In general, the escape room setting offers a playful way to get to know the skills of the participants (Järveläinen, Paavilainen-Mäntymäki 2019:1469; Veldkamp, van de Grint, Knippels, van Joolingen 2020; Hauswald 2019).

3.7. Existing national services and practices for vocational guidance? Also activities of companies to attract students to VET programmes.

There are many services that job seekers can take advantage of. At the national level, for example, the Austrian public employment service (in German: Arbeitsmarktservice - AMS), the Austrian economic chamber (in German: Wirtschaftskammer - WKO), the vocational information center (in German: Berufsinformationszentrum - BIZ) and the Chamber of Labour (in German: Arbeiterkammer - AK) offer support services for all job seekers in all phases of life. These are also represented at the regional level in all provinces. Furthermore, for the Styrian population, there is the Styrian Education Network, where educational and career counselling can also be obtained. Young people can also seek advice from these institutions, but there are for example LOGO Jugendmanagement and IBOBB specialised for young people. Furthermore, there is a brochure "Steirischer Bildungsberater" a Styrian educational advisor, which is also intended to provide support in choosing a suitable career. Also, companies try to recruit

motivated and suitable persons for their company and advertise their company e.g., on various job fairs. (Lehrlingsmesse, DIGI-Messe Jugend und Beruf, BeST3 – Die Messe für Beruf, Studium und Weiterbildung)

To make an appropriate career choice besides the counselling centres, there is the possibility, especially for young people, to create an interest profile. Based on an interest profile, tendencies are evaluated, and various professions and associated training courses are listed. This may make the decision of a profession or an education path easier. All these services are supported especially by the Austrian economic chamber (WKO). In Styria in particular, the "Talent Center" of the WKO Styria and BIC can be mentioned (WKO 2021d; BIC 2021).

3.8. Problems analysis: have you identified any paper / source that outlines specific problems vocational guidance practitioners face? Any data about whether their work is successful? If not, why not – what are obstacles?

Vocational guidance practitioners are confronted with a wide variety of difficulties and challenges in their work, which are repeatedly surveyed in various studies or addressed in articles (Steiner and Monira 2017a: 51-56; Steiner and Monira 2017b; Hammerer, Kanelutti-Chilas, and Melter 2017; Kerler, Kirilova, and Liebeswar 2018: 80-84; Taschwer, Steiner, and Flotzinger 2019: 77-91; Taschwer, Dürr and Steiner 2020).

Current challenges concern not only dealing with migration and multiculturalism (Sultana 2017), but also with upheavals in social spheres of life and work that put increasing pressure on counsellors but also on clients (Schürs 2017: 49-50). In this context not only a lack of German language skills on the part of the clients, but also vocational orientation and guidance of psychologically stressed or ill persons are increasingly recognised as problematic (Steiner and Monira 2017a: 54; Steiner and Monira 2017b; Taschwer, Steiner, and Flotzinger 2019: 78; Taschwer, Dürr and Steiner 2020). The lack of transparency and the overflow of information often called as "information jungle" as well as the difficulty of matching skills, professional interests and the actual world of work are also repeatedly addressed as a challenge (Steiner and Monira 2017a: 51; Kerler, Kirilova, and Liebeswar 2018: 81; Taschwer, Steiner, and Flotzinger 2019: 79-81). According to a study by the AMS, the Public Employment Service Austria, there is also a lack of surveys on the impact and satisfaction with vocational guidance services and processes in order to be able to assess and improve guidance in an evidence-based manner (Steiner and Monira 2017b: 3).

4. Findings Desk research part 2: Escape Rooms for educational purposes

4.1. State of play of Escape rooms for education in general: in which educational sectors (general education, VET, higher education etc.) are they applied already? If nothing is to be found on Escape rooms, try with Escape games. Which purposes do they have? Are there key aspects they focus on? Are there any projects or initiatives on Escape rooms/games for education?

The concept of escape rooms became popular as recreational entertainment about 10 years ago and it has gained ground as attractive method for educational purposes in various sectors since then. The combination of multiple suitable didactic elements such as problem-based learning, collaborative learning, challenge-based learning and storytelling fosters a variety of skills, especially soft skills such as communication, logical thinking, problem-solving, stress resistance, conflict management. However, the concept of escape rooms or escape games is extremely flexible and by setting a certain focus, it can also prompt participants to demonstrate real life skills. It can be applied in any sector for any given topic and in any difficultly level. Escape room games are now also available as board games as well as books or online/mobile app versions, therefore the accessibility is very high.

For these reasons, escape rooms are very popular. Teachers of school pupils to higher education to adult educations who provide further training in companies use at least elements in their work from time to time. Some may visit a real escape room for team-building purposes or to inspire their students to combine their knowledge and skills to solve puzzles. Some others use pre-made board games to loosen up their lessons, while at the same time still focusing on knowledge and learning (for example in contrast to watching a movie). The very motivated ones even create their own escape game riddles.

4.2. State of play for Escape rooms for vocational orientation: are they offered at different educational levels (general education, VET, higher education etc.)? Anything particular offered in VET? Are there any projects or initiatives on Escape rooms/games for vocational orientation?

The Games Institute Austria is currently working on an Erasmus+ project called “Games in basic skills teaching”, where they use the escape game method to make players aware of their skills and knowledge. In their opinion, escape games are more suitable to assess the status quo of competences, not so much to learn something completely new. They also offer their methodology for educational purposes, e.g. in an flipped classroom setting where apprentices design an escape game based on the skills/knowledge they have learned during their VET/WBL and their tutors/mentors have to solve the riddles. It has the purpose of preparing the VET learners for their final exam as they have to use all their competences to design and monitor the escape game.

4.3. Gaming modes: are there online and offline (classroom) versions? Any preferences or described experiences to prefer one mode over the other?

Escape games are offered in an online and an offline context. The immersion potential and the collaborative aspect are much higher in an offline setting, as players have to interact with each other face to face and immerse together into the storyline. Many online versions are designed for single player only, however, with a bit of creativity, they can be utilised in a multiplayer setting as well.

Some games are also available digitally and still played face to face, for example the bomb defusing game, where one person sits in front of the computer and explains what he/she sees to their team members. The team members have a bomb defusing manual and have to talk the person in front of the screen through the defusing process.

Both, online and offline settings, are great methods and to prefer one over the other, one must think about the possibilities and the objectives of utilising an escape game.

4.4. Ideas for possible storylines that guides students through the Escape game - titles and key story

The storyline has to be designed after the mini games/riddles/activities are agreed on and has to put them into a logical and immersive order. Also, the topics/VET professions that will be featured and should be promoted should be fixed before as well. The story is the final thing that gives the finishing touch to the escape game.

Some basic ideas would be:

- Detective story that involves a kidnapping or the tracing of steps of a thief in order to regain a stolen object or solving a murder.
- Being abducted or lost somewhere “yourself” and finding your way home
- Spy on a mission
- An archaeologist who tries to find out more about a lost culture or is trapped in an ancient grave
- Prison escape
- E-hacker (e.g. in the style of Ocean’s Eleven)
- Mystery haunted house with secret doors etc.
- Stopping a bomb
- Following a notorious criminal who left clues all around a city (using a map and clues related to landmarks)

4.5. Suggestions for riddles/puzzles/mini activities to escape the room: short description and solution incl. necessary materials and tools for riddles to escape, supplementary documents if necessary, integration of digital tools (only naming, not too detailed)

Activities:

- Jigsaw-puzzles
- hidden object pictures (German: “Wimmelbild”, e.g. “Where is Waldo”),
- web-quests (e.g. the solution is a chemical formula which has to be researched online)

- coding exercises
- bringing proverbs in logical order
- pictures that are only revealed if looked at from a certain angle
- mathematical exercises
- Sudoku-like riddles
- Einstein-riddles (deduction skill is crucial here)
- mixed-up words, finding information in unusual places (e.g. on the box)
- connecting cables

Tools:

- Batteries
- Combination locks
- UV light/pen
- Jigsaw puzzles (could be cut by a trainer or printed professionally)
- Cables & lightbulb (or LED light)
- Pipe cleaners / paper clips that need to be reshaped
- Paper, pens, scissors, glue, tape
- Coloured foil (reveals hidden information/clues)
- Rubik cube, slider puzzle

→ MUST be easily accessible and reusable - even after the project's end

4.6. Objects and decorative elements (relevant for mobile version)

Depending on the story. For example fedora hat or magnifying glass in a detective story.

4.7. Definition of possible role of participants (tinkerer, collector, coordinator etc.)

It is not recommended to allocate specific roles to players as this limits the experience to only one point of view. The roles depend also on the storyline and the riddles. Roles can be allocated, but they should be fluid and just offer a guideline on what to focus most during the game.

4.8. Safety and possible critical situations (what might happen – risk management)

In general, the activities chosen for the escape game of this project should be safe and not harm participants. When working with batteries and cables, there might be the risk of a small shock, however, it should be a tingle at worst as batteries do not give harmful electrical shocks. If scissors are involved, there is the risk of cuts. On a personal level, there is the risk of conflict and a risk of frustration, if the puzzles are not solved as they players desired. Allocating specific roles may bring the risk that there is conflict if a person is not happy with their role or does not stay within the defined lines of their role.

5. Results of the Focus group

5.1. What are your experiences with Escape rooms, i.e. for entertaining purposes, for pedagogical reasons, for vocational orientation?

The representatives of the training companies and corporate training did only refer to the use of escape rooms mainly for entertainment purposes, no one could really see an approach for vocational orientation especially. Some experts mentioned the use of escape rooms for pedagogical purposes mainly for team building training of groups or training of problem solving skills which has its relevance on corporate level. However, the core opinion of the whole group was that the pedagogical or vocational orientation use of escape rooms is generally hardly exploited. Nevertheless, all focus group participants mentioned that they have already tried escape rooms mainly on mobile phone or also as a board game with children and family. Three participants confirmed that they know that professional escape rooms are available in Graz but they did mainly put that into the leisure and fun section, not at all as a pedagogical or even vocational orientation tool. One expert mentioned that there are some initiatives going on in Austria to exploit the potential of escape rooms for pedagogical and learning purposes in the sense of serious gaming and all focus group participants agreed that the potential of serious gaming should be used much more in future. This finally lead into a discussion about the general approach of an escape room meaning if this approach is more suitable to assess and build on what is already intrinsically learned and available in terms of knowledge, skills and competences within (young people) in the sense of using own skills to solve problems built and “provided” in escape rooms or should an escape room really be an instrument or pedagogical (didactical) tool to learn new competences and knowledge. All participants finally agreed that mainly escape rooms should and can provide an opportunity to apply what’s already there in terms of competences, however, in the sense of peer learning participants of escape rooms could also learn from each other during such an escape room session (e.g. observe colleagues solving a specific problem or challenge) and this potential should also be considered.

5.2. What are your experiences in vocational guidance and attracting learners to VET programmes?

Participants from training companies who are deeply involved in VET training mentioned clearly that at the moment it is rather difficult to attract (young) learners to choose VET programmes instead of a general, also academic education pathway. This has a lot of reasons and the current Covid-19 crisis does unfortunately additionally enforce this situation. It is very difficult for companies to find and attract suitable applicants for their VET (apprenticeship) programmes, the majority of participants in the focus group agreed that young students leaving school for a potential VET programme are lacking basic competences and especially also social competences, they see the trend, that a VET programme is mainly chosen by school leavers with lower grades and lower competences, and better students tend to stay in the general education pathway. VET seems to be the second choice in Austria. The reasons for this which have been mentioned by the focus group participants are broad and many: the age of students to choose between a VET programme and general education pathway is too early in Austria. Basically in Austria students have to choose at the age of 15 if they want to continue

with a VET programme, this is at a stage where young students do not have any idea of the different available professions, job profiles and VET programmes, vocational orientation programmes are hardly offered in schools at the age of 14 (in the Region of Styria – Steiermark it is a little bit better, as practically all students at the age of 14 are attending a talent screening process offered by the Chamber of Commerce in the Talent Center, however, this is also only a 1 day process with hardly any support and professional guidance for students). The fact that this choice has to be made so early leads to the situation that young students have no idea about professions and it seems that because of this uncertainty, they rather choose to continue the general education pathway and so postpone this choice to a later stage. The vocational orientation offers in schools are quite bad, it is mainly done by regular teachers in schools who have some kind of further training in vocational education but generally it is seen as something not necessary and not needed. One participant mentioned also the fact that if a professional vocational orientation programme is offered at the end of lower secondary school to support students to choose a profession and a VET programme, the number of students continuing to upper secondary education will be lower and will also lower the budget and situation of the school. This could be a clear conflict of interest, offering support for leaving school into job life and VET programmes by the school itself. Two participants mentioned the fact that for a VET training programme in Austria it needs a job offer for an apprenticeship training programme and this is something which unfortunately becomes more and more difficult. Many potential VET learners are not able to find an apprenticeship position and then have to be trained in vocational school settings which is, however, not an appropriate setting in the Austrian VET system that builds clearly on apprenticeship training in companies. Escape room experts did additionally mention that currently they cannot remember an escape room setting that focuses on vocational guidance and orientation, however they mention that it is important to remember that escape room contents are almost exclusively focused on knowledge of people as internalised contents are put into practice using playful interactions. He suggests that vocational guidance should be hands on and focused on the activities. However, as mentioned above, this could easily get too specialised and complicated. The partnership needs to act and plan carefully and really highlight the exciting elements of any chosen profession.

Also, it must be possible to reuse the escape game, so materials should be easily accessible – for example reusable (combination lock) or printable.

5.3. What are the goals of vocational guidance from what you know, and which target groups are usually addressed with vocational guidance (levels, sectors etc.)?

In Austria vocational guidance for the first time is offered in the last year of the lower secondary schools (age of 14) where students get to discuss the possibilities for further education, VET training programmes, professional work life etc. This programme is offered by the school itself, by regular teachers who need a short professional further education programme on this issue to offer vocational orientation to their students. Participants from VET training companies mention again that there is the offer of the Talent Center in our region which provides some additional support, a one day testing programme of competences (talents) and a final report with some suggestions about interesting and suitable professions, however this is still done on a very general and anonymous level. In this sense all participants agree to the fact that unfortunately on this level in schools vocational guidance is mainly

focusing on selecting good from not so good students. The good students should continue to upper secondary level and not so good students should continue to a VET programme. This is still the case and the perspective in Austria and leads to the fact that mainly the not so good students appear on the VET level, have problems to find suitable apprenticeship programmes, companies complain about low competences and skills of students etc. For the students who leave lower secondary school at the age of 14 and are planning to enter an apprenticeship based VET training, there is one additional "school" year offered which provides a lot of vocational orientation and preparation for the job and apprenticeship market ("polytechnical year" in "polytechnical schools"). During this year students have a lot of possibilities to try and learn about different professions, spend some internship days in companies of different sectors etc., however, participants do all agree that this is a professional orientation programme and year for the ones that have practically already made their decision to enter the VET and job market at the age of 15. So, if during this polytechnical year, students come to the conclusion that a VET programme is not their first choice after all this orientation and preparation activities, there is practically no way back into the regular and general school system.

In the general school system in upper secondary school at grade 7 (17 years of age) an additional vocational orientation and guidance offer is provided for students, however, this is mainly directed towards academic education, university studies, polytechnical universities etc., at this stage there is hardly the option for e.g. apprenticeship VET programmes. Also participants mention that apart from the offers provided by schools, some private organisations are offering interest tests, vocational guidance programmes etc., they do also come to schools, do some presentations etc. but this is more the exemption that the rule and is depending on the setup of different schools. Also the Austrian Employment Service (AMS) offers some kind of online interest test to support orientation and guidance but during the last years especially AMS has dramatically reduced its offers and support structures for vocational guidance. Until about 10 years ago, AMS has run their own guidance centres in every province of Austria to inform about professions and offer personal guidance for young and older learners, but due to budget restrictions they have all been closed.

5.4. Which elements of VET, i.e. in your sector or in the technical and ICT sectors, can be picked out as attractive elements or positive, exiting tasks that can arouse the interest in potential VET learners? Which of these concrete attractive elements from the professional working world can be shown to young people in the planned Escape room settings?

The escape room experts have clearly mentioned that the possibilities and the repertoire for choosing elements for escape room exercises are absolutely huge and in fact endless, it would, however, be important to pack these elements into a functioning and well tested story line, so it was suggested to eventually build on an existing escape room story and adapt it to the needs and elements chosen.

Almost endless materials are available, for example for coding skills. Examples: "Keep talking and nobody explodes" (cooperative bomb defuse game) and "light bot" → robot is remote controlled using programming commands.

When brainstorming about elements of interest that could be packed into an escape room game, participants have mentioned that especially when thinking about technical and IT professions elements could be that these are issues that have been interesting to young learners from their very beginning (we are speaking about post millennium children who have not lived one day without internet or mobile phone!), this could be an important attachment factor to escape rooms (e.g. use the own mobile phone to solve a problem), other IT and technically related factors could be e.g. an early and quite high income that could be expected when entering these VET programmes, IT and technical professions are for sure quite crisis resistant also during the current Covid-19 crisis we can clearly see that professions and companies in these sectors did not suffer so much compared to others. A further element could be dynamics itself, this was mentioned by two participants, the sector of IT and technical professions is extremely dynamic, new technologies, approaches, instruments are appearing frequently and need quick adaptation and take up of technology. Technical professions allow to work with really big and complex machines, allow practical work, develops the feeling that technology follows the human will, you can feel your own action competence, feel the impact of your planning and actions, technical and IT professions allow self-responsible and independent work, do not require too many social contacts to others, customers etc. than other professions, this means I do not need to consider my personal look, clothes, style etc., technical professions could also allow shift working which could be an advantage e.g. for child care obligations in a family, technical professions may allow travel abroad for mounting services, technical expertise etc. Technical and IT professions help to solve the upcoming problems and challenges to mankind. Participants also mentioned that an approach could also be that professions which formerly have not been so technically influenced have developed into clearly technical professions e.g., dental technicians need to use 3D printing for many purposes or also hearing care professionals nowadays need a huge technical and also IT understanding for their job.

5.5. Sometimes learners cannot come to the Escape room, so the room and its equipment has to come to them: we plan to arrange a box that contains everything for Escape room settings that can be carried around and used in mobile mode (i.e. taking the box into schools and turn a classroom into an Escape room). Do you think that is feasible? Which equipment would you put in the box?

The two escape room experts in the focus group panel are already working with mobile escape rooms and did give a few recommendation but were not able to go too much into detail as this may lead to additional competition through the Escape2Stay escape room game. The mentioned that when planning such an escape room game box we have to think about the whole process: the problem solving, perception, potential distractions, informative thinking. Their Box is called “Best-Case-Escape Box” and consists of 6 minigames using: 5 combination locks, UV-light and UV-pen as well as “hint cards” that can be given to an instructor (who will then give a hint) and “refection cards” that help the participants to reflect on the knowledge/competences they have trained and demonstrated during the escape game. Especially the **reflection cards** are recommended to the Escape2Stay partnership! Other participants did also mention that the escape room box should be designed in a way that it can be applied in a regular e.g. seminar room, school classroom etc., maybe it could be expected from teachers and users of the escape room game to provide some easy to get

additional items that do not always need to be included in the box e.g. pen, paper, wall magnets etc. but apart from that suggestions of items for such a box were: paperclips, battery, wires, lamps, puzzles and riddles, hidden objects pictures, 3D pictures, QR codes leading to additional materials online, augmented reality applications easy to apply via mobile phone (augmenting an additional reality e.g. on a table, a window etc. by putting the mobile phone on top of it), pictures on mobile phones from different perspectives, maps, layouts e.g. from houses, castles, rooms etc., some guidelines and support for the escape room guides (which could be the teachers or trainers). In addition to this, participants mentioned also to try to include things and objects which are basically available in any room e.g. a door, window, chairs, table, wall pictures etc. One important argument mentioned by the two escape room experts was, that the equipment as such is not the content, these are instruments, tools to help solving riddles and move a step forward, however the instruments could have a strong relation e.g. to technical and IT professions so to support this vocational guidance impact.

5.6. Later vocational guidance practitioners, VET schools and training companies could use the Escape room settings to create an own Escape room in their premises. How could they be enabled to set up the settings on their own (handbook, guidelines, videos etc.)?

The guidelines/handbook should provide basic knowledge about the topic as well as the goals of the Escape Game. The game itself should assess already existing knowledge, not particularly teach something completely new.

There should be instructions about the needed preparation steps. Users of the handbook/guideline should have a clear impression of the ideal process, the solutions and the potential challenges (maybe even frequently asked questions). A whole and complete walkthrough of the game must be provided, if possible, videos of a group doing the game would be perfect (and more innovative/immersive). Of course this is not absolutely necessary, also in the frame of the project possibilities in Escape2Stay it should be reflected if this is really feasible.

The whole Escape Game MUST be ready to go! If there are extra steps, teachers and VET mentors may not try it and refrain from using the Escape Box. Take away the fear of the didactic concept (this is more for the persons working in companies). The handbook/guideline is only the start – with each implementation, the mentors get more experienced and confident in using this method! This is also why the game must be reusable easily.

5.7. Do you have any Ideas for possible storylines that guides students through Escape game (titles and key story) and which riddles/puzzles/mini activities could be challenging for them to escape the room?

The escape room experts did clearly mention, that the storyline is actually the last thing to do when developing such an escape room game. First you draft the riddles and activities, then you can add a story. The story is only a nice-to-have that helps a bit with the immersion, but the core of it are and must always be the riddles and games. Therefore, the coherent and smart design of the activities is far more important. The motivation and excitement roots in the activities, not really in the story itself.

The storylines that almost every time work are: detectives, aliens, treasure hunt. Keep in mind the dynamics of the participants. Do they know each other or not when entering an escape room, are they aware of competences available, are aware of roles and group dynamics, all this is influencing an escape room setup and planning.

It should be remembered that from experience an escape room is more an assessment tool of knowledge (maybe even skills and competences) than a learning/teaching instrument. Another idea would be to let participants draft their own competence profile during the game, kind of like character design (e.g. “gain 2 points in coding knowledge for successfully completing this task”). Other suggestions for activities from other participants were e.g. defusing of bombs, construction of machines and mechanical parts, assembling, web quests, puzzles, use of chemical formulas, treasure hunts, crime/mystery is basically interesting for all age groups. It would be important that storylines developed are close to life realities of young people, should rather play in current times and should include modern technology, probably an urban setting for a storyline would allow more possibilities than a rural setting.

6. Recommendations in 10 statements

1) The escape game box must be easily accessible and the materials must be ready-made. This ensures that trainers/teachers can take the box and start implementing without needing too much time for preparation.

2) There must be a detailed guideline, which should also include pictures, tutorials (video walk-trough (LTTA)) to visualise the whole process.

3) The storyline of the escape game is not as important as the coherency of the activities. The storyline is the nice packaging, it is not a “must-have”, but a “nice-to-have” element.

4) The escape game box must include reusable materials and activities that can be implemented multiple times with new groups of players.

5) Escape games should be used as assessment instrument of already internalised knowledge, skills and competences, not as learning method for new content.

6) The escape game should feature “reflection cards” that help players raise awareness of the competences they already possess.

7) Dedicated and too sharply defined roles in an escape game may cause conflict.

8) Trainers/teachers should be made aware that all game masters become better with experience and that good preparation is crucial in the beginning.

9) There is a big difference in the game process if players know each other or not. Game masters must pay attention to this detail.

10) Puzzles/riddles must be coherent and well connected, they should be close to the daily life of players and utilise familiar materials (e.g. mobile phone for web-quests, jigsaw puzzles etc.)

7. Demystifying the idea of a VET pathway as second choice: good reasons to start a VET programme in your country

In Austria, the dual VET system provides young people with real life work experience from the beginning onwards. Choosing a VET pathway also gives learners the chance to earn real money from day 1 and, therefore, be financially independent earlier that students of higher education. More details are explained under point 3.2.

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