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The *Mapa Karier* Portal: Implementing Career Advice without Personal Contact

Founded in 2016, *Mapa Karier* (Career Map) is a free digital tool supporting career design, in particular, for primary school students and career counsellors at primary schools in Poland. It was designed as a clever compromise between attractiveness, which is required to draw and retain the attention of young people today, and effectiveness in transmitting key career-related information when direct personal contact with the client is not possible. This article presents the goals of and assumptions behind *Mapa Karier* and discusses the methods of indirect counselling it implements and their limitations.

Keywords: *Mapa Karier*, web application, indirect counselling

The choice of a career is a process that takes a lot of time and is affected by many factors. It is particularly difficult for young people because it requires them to be able to analyse and select information, make decisions and develop plans. Decisions made in adolescence are influenced by youngsters' developing interests, beliefs, habits, aspirations and determination, and also by questioning values, seeking the meaning of life, rebelling against the reality in place or feeling lonely (Wojtasik, 2011, qtd. in Oleszkowicz, p. 38). According to Magdalena Piorunek, emotions experienced by young people when planning their careers are quite polarised, ranging from eagerness and self-confidence to emptiness, helplessness, confusion, doubtfulness, hesitation and even anxiety (Piorunek, 2004, 217–18). All these factors limit the career options that the adolescents consider viable while making their first occupational decision in life (Gottfredson, 1996). The inescapable necessity of selecting just one path from an endless pool of potential alternatives for the upcoming years of life is inherently stressful and may cause postponing the decision, then indecision and, finally, a failed career (Bańka, 2014). This is one reason behind long-standing campaigning that career-related topics should be addressed at schools starting from the first grades in order to optimally utilise the time for developing

a firm work identity (Magnuson & Starr, 2000; Piorunek, 2010; Musset & Mytna Kurekova, 2018). Importantly, it is not about choosing the 'optimum occupation' but rather about taking the first step toward establishing a broader plan for life, in the paradigm of the modern framework of 'life design' counselling, which regards career decisions as fundamental to human existence as a whole (Savickas et al., 2019).

The time for acquiring key competences that open access to a desired professional group is limited. This is true in particular for occupations that require well-trained muscle memory, such as a musician, a ballet dancer or an athlete. At the same time, to train in the professions that have long topped the wish-list of both students and their parents, such as a doctor, a lawyer, an engineer, an IT specialist, a psychologist or an architect (Mann et al., 2020), candidates must have high grades in most school subjects, and that entails hundreds of hours of arduous study. Besides the relevant subject knowledge, young people must also develop social competencies, self-discipline and interests to make their career decisions easier.

Although since 2003 schools have been allowed to hire career counsellors and since 2010 they have been obligated to organise activities promoting students' choice of their paths to further education and to profession (MEN, 2010), for many years career-related duties have been pushed aside in the Polish education system, leaving young people alone in their decision-making (Wojtasik, 2011, p. 56). Research has found that many students begin to contemplate their future only as late half a year before graduating from school, and that 37% of adolescents do not make any life plans at all (Krzychała, 2004). However, readiness for making decisions heavily depends on prior preparation, self-awareness, knowledge about the job market and self-efficacy beliefs (Hirschi, 2011). For its part, self-efficacy is often related to prior academic achievements and cannot be significantly boosted in just a few months (Bandura et al., 2001). One's knowledge about the job market is relatively easiest to increase, and it can be done by enhanced exposure to occupation-related information (Hirschi, 2011). Even if such interventions have not been attempted and students have not accumulated enough knowledge, properly designed experiences may broaden and enrich that knowledge. *Mapa Karier* (Career Map) was created to deliver just that.

It was only in 2019 that obligatory career counselling was comprehensively introduced into school curricula at all levels of education in Poland. The implementation of the curriculum has faced multiple challenges. Specifically, schools have not been able to find well-trained counsellors. For administrative and economic reasons, it has been a common practice for school heads to appoint the regular staff, for example subject teachers or school specialists without sufficient qualifications, as career counsellors. Supporting resources and tools were hardly available. Worse still, the teachers, ill-prepared for the job, have not known where to look for the materials in the first place. Since career counselling is not a graded subject, students' engagement and attendance levels have been low. Thus, the quality and popularity

of these lessons have principally depended on individual counsellors' charisma and resourcefulness. Under such circumstances, the Internet has been a go-to source for the career-counselling staff at schools, who have rummaged through it for inspiration. *Mapa Karier* answers these needs. The website statistics presented further in this report and from plentiful direct feedback from school counsellors indicate that the project is hugely popular and is actively used by multiple career counselling professionals.

The Design Assumptions of *Mapa Karier*

Launched in 2016, *Mapa Karier* (https://mapakarier.org) is an open-access, free-to-use web application that introduces children and adolescents into the world of jobs. The original goal of Katalyst Education, a Poland-based charity foundation behind *Mapa Karier*, was to increase students' motivation for learning by contextualising the curriculum, that is, by demonstrating the practical applicability of the subject matter taught in schools. Yet since 2019, virtual career counselling has been the primary goal, and contextualisation has become one of the methods for achieving it. *Mapa Karier* aspired to remedy the accelerating decline of academic knowledge and social competencies among primary and secondary school-leavers, a development noted by employers and university teachers (NIK, 2019). At the root of this phenomenon was a decreasing trust in the value of curricular knowledge among students and their parents, combined with the popularisation of the Internet as an always-available source of information. The founders of *Mapa Karier* reasoned that young people would more eagerly broaden their knowledge and raise their aspirations if they were convinced about the practical applicability of this knowledge in specific, attractive occupations. This assumption was confirmed in 2021 by Fundacja Orange (Buchner, Fereniec-Błońska, & Wierzbicka, 2021). Adding job-related contexts to subject lessons would also help students develop occupational identities and make good career choices when the time came.

The major challenge for *Mapa Karier* was the lack of direct contact with students. As a relatively small non-governmental organisation, Katalyst Education carries out its mission through digital tools. That is why *Mapa Karier*, like its sister project Pi-stacja (https://pistacja.tv) providing video tutorials as an alternative to commercial tutors, decided to rely on teachers to deliver its content to students. *Mapa Karier* was thus designed principally as a tool to be used by students in the presence of an adult (ideally, a career counsellor) or in direct contact with them. Yet there are counselling goals that *Mapa Karier* seeks to achieve on its own, in a carefully designed way. These goals are: increasing the number of occupations known to students (career awareness), discouraging premature limiting choices (life-long learning) and contextualising the curriculum (motivation). The methods

underpinning *Mapa Karier* are described in detail in further sections. The major assumption is that exposure to the website's content should make primary school students:

a) consider aspiring to professions that they have not known or taken into account previously, ideally, to more than one;

b) realise that aspiring to several professions requires keeping one's options open and maintaining a broad outlook to avoid premature closure of some desirable paths;

c) realise that the time spent in school is optimal for preparing them to execute their life plans and should not be wasted.

The Goals of *Mapa Karier*

Increase the number of occupations known to students

As a rule, primary school students, even those in the final grade, can list very few occupations, as indicated by the ranking of the most often browsed professions (Figure 1). Therefore, expanding their knowledge of existing jobs continues to be one of the crucial tasks of career counselling. One cannot aspire to a job one does not know exists in the first place. Being familiar with many occupations not only fosters a better understanding of the job market, but also boosts one's chances of finding inspiration. New information can cause students to reconsider, change or crystallise their provisional plans founded on childhood fantasies or family traditions. More options may mean more stress, but it is necessary in order for the final career decision to be well-grounded. In addition, it is not a bad choice when a student considers several professions. Knowing various opportunities offered by the job market helps one plan an 'escape route,' that is, backup career paths in case one's first-choice profession turns out to be no longer viable for whatever reason.

1	Attorney	8.5 K		1	Psychologist	8.7 K
2	Counter-terrorist	5.7 K		2	Attorney	7.6 K
3	Teacher	5.4 K		3	Teacher	7.3 K
4	Doctor	5.4 K		4	IT specialist	6.1 K
5	Veterinary surgeon	5.2 K		5	Veterinary surgeon	6.1 K
6	Athlete	5.2 K		6	Policeman/Policewoman	6.0 K
7	Policeman/Policewoman	5.1 K		7	Doctor	5.6 K
8	Psychologist	4.8 K		8	Architect	5.6 K

9	Architect	4.6 K		9	Soldier	5.4 K
10	Priest	4.5 K		10	Criminologist	5.2 K

Figure 1. The most popular occupations in *Mapa Karier* in Q4/2022 in the 'City of Professions' mode for children (left column) and in the 'Career Paths' mode for adolescents (right column)

Mapa Karier supports career exploration by maintaining a constant influx of potentially attractive options. Presumably, a typical user of the *Mapa Karier* website aims to find one ideally fitting occupation. The user may pursue that aim by employing various features of the tool: by browsing the catalogue page by page or by browsing search results by:
- keyword;
- category:
  - branch (28 different branches);
  - typical work setting (desk, action, open air, vehicles);
  - typical working hours (standard or non-standard);
  - contact with people (occasional, average, frequent);
  - physical effort (none, small, medium, big)
  - digital competences required (basic, average, advanced, expert);
  - future jobs;
  - regulated professions;
  - vocational professions;
- clicking the dice to view random occupations;
- the Preferences Filter (the feature is further depicted below).

Eventually, the user always arrives at a specific occupation page, where the well delivered information about the chosen job (with each occupation described in an affirmative manner, stressing its social value) is accompanied by a set of tempting alternatives. The alternative propositions are selected by an algorithm that calculates a similarity factor, so that they are likely to be as attractive as the occupation being viewed. The factor is entirely based on quantified characteristics of each profession; it does not rely on Holland's taxonomy (Holland, 1985). When the user clicks one of the alternatives, the entire process is repeated and, again, a new set of alternatives is presented along with the information about the job.

Data from Google Analytics shows that this approach works reasonably well. Over one school year, *Mapa Karier* is visited, on average, by 50 thousand users per month and almost 500 thousand per year. 14% of them view at least 5 occupations during a single visit. The rolling dice is a hugely popular feature, which gets, on average, 150 thousand clicks per month. Among the most engaged users who utilise the time-consuming Preferences Filter, over 37% view at least three of the filtered

occupations. Regrettably, it is impossible to establish whether those engaged users are in a classroom accompanied by a career counsellor, or whether they are browsing *Mapa Karier* by themselves. However, the former seems more probable because the data indicate that the website is most used early in the afternoon, 12 a.m. and 3 p.m., which is exactly the time when schools tend to hold career counselling lessons (Figure 2). One way or another, the exploration goal (career awareness) is accomplished.
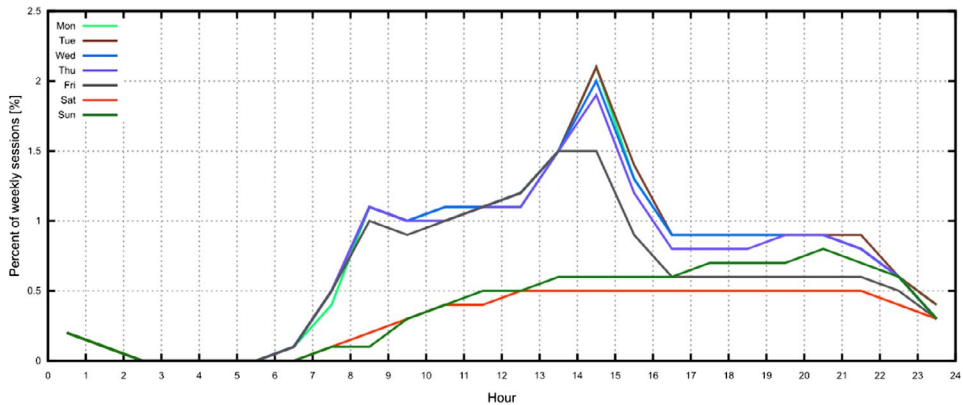

Figure 2. The frequency of *Mapa Karier* visits (sessions) across the week and the day

Discourage premature limiting choices

Another important goal of *Mapa Karier* is to counteract heedless thinking about one's future which can be trivialised as saying: 'I have chosen/will choose some job or whatever.' Students are well aware that they will have to choose a particular education path leading to a particular group of occupations. As a result, they easily succumb to the temptation of treating their transient failures or dislike of certain areas of knowledge as objective factors limiting their career choices. The human mind is known to be naturally lazy and to need a valid reason to make any effort (Kahnemann, 2011). Sadly, the school environment may reinforce students' self-limitation instead of preventing it. For example, teachers in Polish schools tend to tag students very early as 'scientific minds' or 'humanistic minds' and quickly stop encouraging the 'humanists' to study mathematics, even if their underachievement in mathematics is not caused by the lack of talent (NIK, 2019). This approach may limit students' career aspirations. Children whose aspirations are strongly shaped by their parents are at risk of similar constraints. They too can have their perspective distorted from very early age on, pushing them to focus on some school subject at the expense of others, perceived as unimportant. If people are to be prepared to thrive and learn in a world dominated by VUCA (volatility, uncertainty, complexity, ambiguity), they

must develop skills in multiple areas and make limiting decisions only when those are unavoidable. That is why forestalling premature limiting choices should be considered a fundamental part of career counselling whose goal is to develop life-long learning habits (Savickas et al., 2009).

In order to promote comprehensive searching and filtering, the authors of *Mapa Karier* quantified many characteristics of professions. The biggest work was needed to assign to each of more than 700 occupations the levels of required knowledge in respective school subjects (for more details, see below). Together with the categories listed above (branch, etc.), the subject levels made it possible to construct a complex mechanism for filtering professions by individual preferences. A clever approach was chosen to discourage premature limiting choices. Assuming that users wish to find their 'perfect fit' in the world of jobs, *Mapa Karier* was designed to offer them an untypical filter of professions. The feature was named the Preferences Filter because its goal was not to limit the choice range, which is the case with a typical 'preference test,' but rather to expand it thoughtfully.

The Preferences Filter enables people to select their favourite school subjects, preferred levels of human contact and physical effort, industry branches matching their interests and even general tasks typical of the job (e.g. data analysis, order-keeping, care for people, etc.). The point is that the Filter was devised so that in order to set their preferences users must *deselect* options instead of selecting them (all options are selected by default). In this way, they can instantly see the consequences of their choices. For example, when a user decides to pass over a job that requires mathematic skills above multiplication and division, a numerical counter will show them that they have just rejected three quarters of all the occupations in *Mapa Karier* (Figure 3). Deselecting too many options may easily result in obtaining zero occupations from the Filter. Forced to rethink their priorities, users become more thoughtful with their choices.

Figure 3. The Preferences Filter in *Mapa Karier* includes an algorithm designed to make users thoughtfully broaden their career options

Mapa Karier also seeks to counteract gender stereotyping, which plays a major role particularly in young children (Gottfredson, 1996). Each profession available in the tool has a male and a female variant, including the miner and the doula. Such a radical approach sparks emotions, but it is a desired reaction because the message is delivered. The non-standard gender roles are reinforced with proper imagery; for example, a female welder has a dirty but happy face. Also the names of the occupations trigger vivid discussions. In the Polish language, nouns are marked for grammatical gender; for historical reasons, there are no feminine names for many typically male professions and, similarly, some typically female professions lack masculine variants. Often, the terms that could work as opposite-gender names are already taken by common objects. For example, the 'pilot' (a male flying an aeroplane) could have its feminine equivalent in 'pilotka' ('-ka' being a typical feminine nominal suffix), but the word denotes a thick leather hat in Polish (Eng.: a flying

cap). *Mapa Karier* is also radical in this respect, as it uses the feminine nouns despite their already existing meanings. This is meant as a protest against the appropriation of language space by gender stereotypes and, simultaneously, as an attempt to shape that space in the school environment.

Counteracting gender stereotypes should begin at as early age as possible (Magnuson & Starr, 2000). *Mapa Karier* presents its contents in two very different modes. While the 'Career Paths' ('Ścieżki Kariery') mode is dedicated to adolescents and adults, the 'City of Professions' (Misto Zawodów) mode (Figure 4) was developed for preschool and kindergarten children. The City of Professions is an interactive city where children can explore active workplaces, such as film studios or car garages, to see who works there. This choice of this exploration form was prompted by the observation that children in the fantasy phase rarely know *what* their parents actually *do* at work, but they usually know *where* they work (Ginzberg, 1988). This led the designers of *Mapa Karier* to believe that exploring workplaces on a virtual map would be the most intuitive way for children to enter the world of jobs.
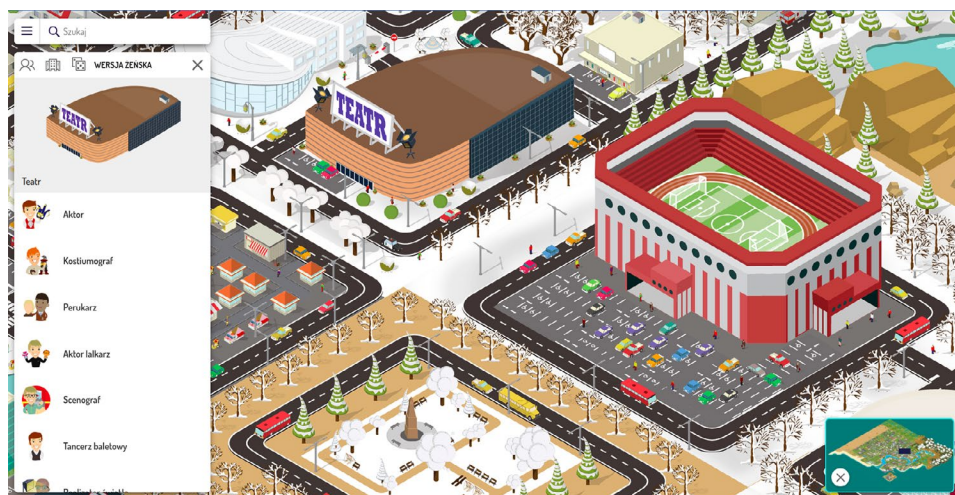

Figure 4. The City of Professions: a visually rich, interactive mode of exploration for the youngest users of *Mapa Karier*.

Contextualise the school curriculum

Today, students are increasingly assertive towards teachers and not infrequently challenge them by asking 'why do I have to know this?' or 'am I really going to need it in my life?' Teachers often struggle to answer such questions and can only explain that 'it is required by the official curriculum' (Buchner, Fereniec-Błońska, & Wierzbicka, 2021). As they mostly have little personal experience working in professions other than teaching and no training in career counselling, teachers often are

not up to date with the reality of the job market. For example, they may not know that programmers must use trigonometry and vector matrices in their work, or that fine art conservators must have an expert knowledge of chemistry. If teachers knew that, they would be able not only to make their students more eager to study their subject but also to influence the youngsters' career aspirations.

Mapa Karier seeks to fill that gap, and in doing this, it may be the only such digital tool in the world. Each occupation in *Mapa Karier* has been assigned a required level of competence (in the range 1–4) in each of the thirteen school subjects taught in Poland (the levels were arbitrarily defined by the *Mapa Karier* team). Additionally, each level assignment has been supported by a concrete reason. This permits users not only to filter the occupations by their favourite school subjects but also to learn about the practical applications of the curricular topics covered in classroom. This is important because it has been shown that career aspirations of many students do not match their academic aspirations and achievements; adolescents plan to be business managers or doctors despite their sub-par performance and poor grades (Mann et al., 2020). The divergence results from their ignorance of the actual requirements for those jobs. *Mapa Karier* presents those requirements in the context of school subjects, which gives students enough time to bring their achievements and aspirations into alignment.

Achieving Goals through Collaboration with School Counsellors

With no support from an adult (a parent, a legal guardian, a teacher or a school specialist), the effectiveness of a digital tool such as *Mapa Karier* in the hands of a student is limited. Today's school students spend many hours daily with digital technologies from the youngest age on and, as a result, develop the habit of treating digital content very superficially. While *Mapa Karier* is relatively attractive visually, particularly as compared with other career counselling tools, it is neither a game nor a social network. An average user spends just seven minutes using *Mapa Karier*. This may be enough to learn about one occupation, but this was not the purpose for which the portal was designed.

Since the very beginning, *Mapa Karier* has been advertised as a tool for school career counsellors, because it is only through school that it is able to fulfil its mission effectively. While children raised in well-educated and affluent families can spend some quality time exploring a website with job information alone, it is rather unlikely to happen for children of uneducated parents focused on subsistence challenges. Such children may not even have access to a connected device. However, as all children must go to school, school is where those most in need are easiest to reach.

Since its launch, *Mapa Karier* has likely managed to reach almost all school career counsellors in Poland. The website has almost 10 thousand newsletter subscribers and over 11 thousand followers on Facebook. For the sake of numerical

comparison, there are 14 thousand primary schools and 7 thousand secondary schools in Poland, all of which are obligated by the education law to appoint a staff member each to implement the career counselling syllabus. The newsletter is dedicated to these people, and it may be assumed that all subscribers fall into this category. *Mapa Karier*'s offer for school counsellors includes lesson plans, career awareness games, manuals and webinars. A webinar is watched live by 600 to 1500 viewers. *Mapa Karier*'s methodological manual titled *Szkoła, praca, przyszłość* (*School, work and the future*) has been downloaded more than 23 thousand times, and the lesson plans, more than 250 thousand times in total.

In order to see if *Mapa Karier* is also used in small towns, Google Analytics geolocation data have been collected for the calculation of Sargant-Florence's location coefficient (Sargant-Florence, 1948) over several years. The coefficient is calculated by comparing the size of the population aged 5–19 in a voivodeship with the number of *Mapa Karier* visitors coming from the area. The values of the Sargant-Florence coefficient range from 0 to 1, where values below 0.25 indicate a low geographical concentration or a high dispersion. In 2018, the coefficient was 0.22, and has since gradually dropped to the current value of 0.15 (2023). As expected, the majority of *Mapa Karier*'s users come from large urban areas and from voivodeships with such metropolitan hubs. However, the proportion of users from smaller towns and rural areas is growing consistently. The least represented are the voivodeships where some industries heavily prevail and, consequently, vocational education plays a dominant role.

Opportunities of and Limitations to *Mapa Karier*

As a digital product, *Mapa Karier* carries out its mission almost exclusively through remote, indirect contact, never meeting its users in person. While collaboration with school career counsellors, who are best situated for direct contact, is at the very heart of *Mapa Karier*'s strategy, it is obvious that many students use the website on their own. To cater to them effectively, *Mapa Karier* tries to achieve at least some of the career counselling goals with basic interaction. The tool has been considerably successful in increasing career awareness, in discouraging premature limiting choices and in contextualising the school curriculum. In these areas, it has managed to deliver services that are second best to individual consultation with a qualified counsellor. At the same time, *Mapa Karier* has prepared its users well for such consultation, supporting counsellors in a manner similar to the Pi-stacja video tutorials supporting subject teachers. For the best outcomes, both digital tools can and should be implemented through the 'flipped classroom' approach, where interaction with a digital tool prepares a student for an in-person learning session.

Despite its thoughtful design, *Mapa Karier* has its challenges. The main problem is the anonymity of the users. Based on the current data, the user's age and

situation cannot be established; nor is it possible to determine whether the interaction has had a desired effect. The demographic and geolocation data provided by Google Analytics are marred by fundamental deficiencies. For example, the user's age is based on the Google account owner logged in or guessed from the analysis of their browsing history. This mechanism works tolerably well if a person visits *Mapa Karier* from a device of which they are the sole owner and is aged over 16 (by Polish law, children younger than 16 cannot set up online accounts). However, children often use devices owned by their parents or siblings, or school devices used by dozens of people. Also geolocation is far from perfect, and it is not uncommon for it to be off by hundreds of kilometres, due to dynamic IPs. Relatively reliable information about users' age, location or socio-economic status may be obtained by implementing user accounts on *Mapa Karier* and running surveys. To date, the founders of the portal have dismissed this opportunity to avoid creating access barriers that might discourage generation Z, notorious for their impatience. This option is still on the table, however.

Another challenge is related to occupations themselves. The notion 'profession' or 'occupation' meant as a well-defined set of competencies exercised over a large part of one's life is subject to a quick devaluation in today's world. *Mapa Karier* was based on professions because that was expected by parents and teachers alike, and also because it was very difficult to show what people did in their jobs without naming their sets of competencies in one way or another. Certainly, it would be more appropriate for users of all ages—students, their parents and teachers—if *Mapa Karier* could present jobs in a more realistic fashion as dynamic multi-profession sets of competencies that tend to evolve even in one and the same work position. That would also make it much easier to show that, as noted by Bernadette Dumora, there are many more occupational options than there are school subjects, and that in order to develop occupational competencies one must go beyond the knowledge taught at school (Dumora qtd. in Guichard & Huteau, 2005). The team of *Mapa Karier* are planning to take the first step in this direction in 2023 by trying to integrate the portal with the ESCO database (https://esco.ec.europa.eu/). ESCO is still far from finished and suffers from very uneven levels of complexity in job descriptions. Because of that, the integration will not be complete, but *Mapa Karier* users will be able to learn in an attractive way what working in a given occupation actually entails in practice. It may also be possible to filter out all professions that involve a given activity.

Remote career education for children and adolescents can perhaps be advanced by yet another step. Given the quick development of chatbots (in particular AI-based chatbots, though those using traditional algorithms as well), it may soon be possible to support the counselling process in much more effective ways. It is easy to imagine a tool that creates a client's profile for a career counsellor based on a short chat and at the same time equips the client with a basic understanding of the job market and fosters their proper mindset for career thinking, thereby

most importantly, promoting self-efficacy beliefs in the paradigm of Life Design. If such a tool were free to use, similarly to *Mapa Karier*, it could quickly become ubiquitous, creating opportunities for interesting research in social psychology and counsellogy.

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