The Effect of Career Guidance Intervention on High School Students' Vocational Identity - a Scoping Literature Review

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Master Thesis - Ontwikkelingspsychologie

Een masterthese is een proeve van bekwaamheid voor studenten. De goedkeuring van de masterthese is het bewijs dat de student over voldoende onderzoeks- en rapportage-vaardigheden beschikt om af te studeren, maar biedt geen garantie voor de kwaliteit van het onderzoek en de resultaten van het onderzoek als zodanig, en de masterthese is dan ook niet zonder meer geschikt om als academische bron te worden gebruikt om naar te verwijzen. Indien u meer wilt weten over het in deze masterthese besproken onderzoek en eventueel daarop gebaseerde publicaties, waarnaar u zou kunnen verwijzen, kunt u contact opnemen met de genoemde begeleider.

Abstract

This scoping literature review examines the effects of career guidance interventions on high school students' vocational identity development. Following the PRISMA guidelines, 20 articles were included based on inclusion and exclusion criteria. The following interventions were identified: Educational program, Parental involvement, Tests, Group counseling, Career talks and Portfolio. Educational program emerged as the most effective intervention, while findings on parental involvement intervention were mixed. In general, the interventions lacked a common framework, however they shared common outcomes suggesting underlying mechanisms. Some similarities were found between the interventions educational program and group counseling. Research gaps revealed a lack of differentiation between educational tracks, limited involvement of teachers and counselors and the absence of job shadowing or internships as an intervention. Practical implications suggest implementing the intervention educational program due to the positive effects. Moreover, national guidelines are recommended to ensure accessibility and consistency for high school students.

In the Netherlands, secondary education lays the foundation for career choices. Choosing the wrong tertiary education can lead to demotivation and school dropouts (Korpershoek et al., 2022). 25.2 percent of Dutch students who had chosen to enroll in tertiary education in 2021 dropped out or switched educational tracks (Ministerie van Onderwijs, Cultuur en Wetenschap, 2022). According to Schmitz (2015), the main reason for this is a low level of college and career readiness. This refers to the degree of preparation a student needs to enroll and succeed in postsecondary education. It is fostered by developing a vocational identity, which is a clear understanding of one's career goals, skills, and academic interests (Kriesi et al., 2024).

High schools can help with developing a vocational identity by implementing career guidance interventions. According to Babarović et al. (2019), career interventions are defined as 'any treatment or effort designed to enhance an individual's career development or to enable the person to make better career-related decisions'. Such interventions are not only useful for students, but also for society, as they can stimulate career-related decisions that align with the labor market since mismatches may result in difficulties finding work (Gelderblom et al., 2021). The meta-analysis of Crocetti et al. (2024) shows that in general, career guidance interventions have a significant positive effect on students' educational and professional identity. These effects are typically examined through constructs that capture how the interventions have an effect on students' vocational identity (Babarović et al., 2019; Lau et al., 2019; Maree, 2019). One of these constructs is self-efficacy, referring to the degree in which students feel confident in completing a task that has to do with career decision-making (Babarović et al., 2019; Cardoso et al., 2022). Another construct is career adaptability, referring to the ability of a student to manage career tasks in the present and future (Alfianto et al., 2019; Maree., 2019). The final construct used is

career maturity, which refers to a student making age-appropriate career decisions involving self-awareness and career awareness (Lau et al., 2019).

Since 2016, career guidance is a mandatory part of the Dutch high school curriculum (De Vries et al., 2024; Gelderblom et al., 2021). There are two legal requirements. Firstly, students must learn skills to help them with their career competencies, which shape their career development. These include networking, skills and motivational reflection, career exploration and management. The second legal requirement states that a student needs to create a career portfolio. In most cases, this is integrated into a mentorship program. However, schools have the authority to decide how to implement it. This means that there is a considerable variation in career education in the Netherlands, which could result in unequal opportunities for students (De Vries et al., 2024; Gelderblom et al., 2021).

This variation between schools indicates that there is a lack of sufficient guidelines on effective career guidance. This scoping literature review serves as a first step toward a more coordinated, comprehensive and evidence-based approach to support career guidance interventions in high schools in the Netherlands. The review aims to investigate the different career guidance interventions in the Netherlands as well as other internationally relevant interventions and their effect on high school students' vocational identity development. The review aims to identify the most useful interventions that schools can implement and highlight gaps in the literature where more research is needed. This results in the following research question: What is the effect of career guidance interventions on high school students' vocational identity development?

Methods

A scoping review was used to explore the current literature about the effect of career guidance interventions on high school students' vocational identity development. This method, according to Arksey and O'Malley (2005), is suited for mapping out key concepts in complex or underexplored fields, offering a broad overview and identifying possible research gaps in the literature. This made it the most fitting approach to answer the research question. This study was conducted according to the PRISMA-ScR.

Search strategy

To explore the current literature on the effect of career guidance interventions on high school students' vocational identity development, the following electronic databases were used: PsycINFO, PubMed, SmartCat (the online library of the University of Groningen) and Google Scholar. Articles were found by using a combination of keywords. The main keywords were 'Career Guidance Interventions', 'High School Students' and 'Vocational Identity Development'. The Dutch keywords used were 'Loopbaan Begeleiding', 'Loopbaanoriëntatie', 'Beroepskeuze' and 'Middelbare Scholieren'. However, due to familiarization with the literature, more keywords emerged during the search process, which were 'Career Counseling', 'Career Guidance Programs', 'Career exploration' and 'Studiekeuzebegeleiding'.

Study eligibility

Articles were chosen based on the established keywords that appeared in the title or abstract. Only articles published since 1990 were included to ensure the focus on career guidance in modern education. No books were included in this research as the focus of this review was on

research-based studies. All articles that were examined were in the English or Dutch language providing a broad international perspective and making it relevant to the career guidance in the Netherlands. Furthermore, quantitative, qualitative, or mixed-method designs were all included in the review to ensure a diverse perspective on the topic. Since the target population of the study is high school students, the age for the participants in the studies was between the ages of 12 to 18.

Charting the data

To map out the data obtained from the research articles a charting technique was used, which involves categorizing articles by key themes (Arksey and O'Malley, 2005). The data was charted using the program Google Sheets. Information was documented as follows: Title of article, Author, Year of publication, Study design, Sample size, Study setting, Aim of the study, Type of intervention, Key findings, Limitations and Additional notes.

Data synthesis

The results of the research articles are displayed thematically. Through the data chart, six types of interventions were found. These are Educational program, Parental involvement, Group counseling, Tests, Career talks and Portfolio. The filled-in data chart can be found in Appendix 1.

Results

Figure 1

PRISMA flow diagram of the study selection process
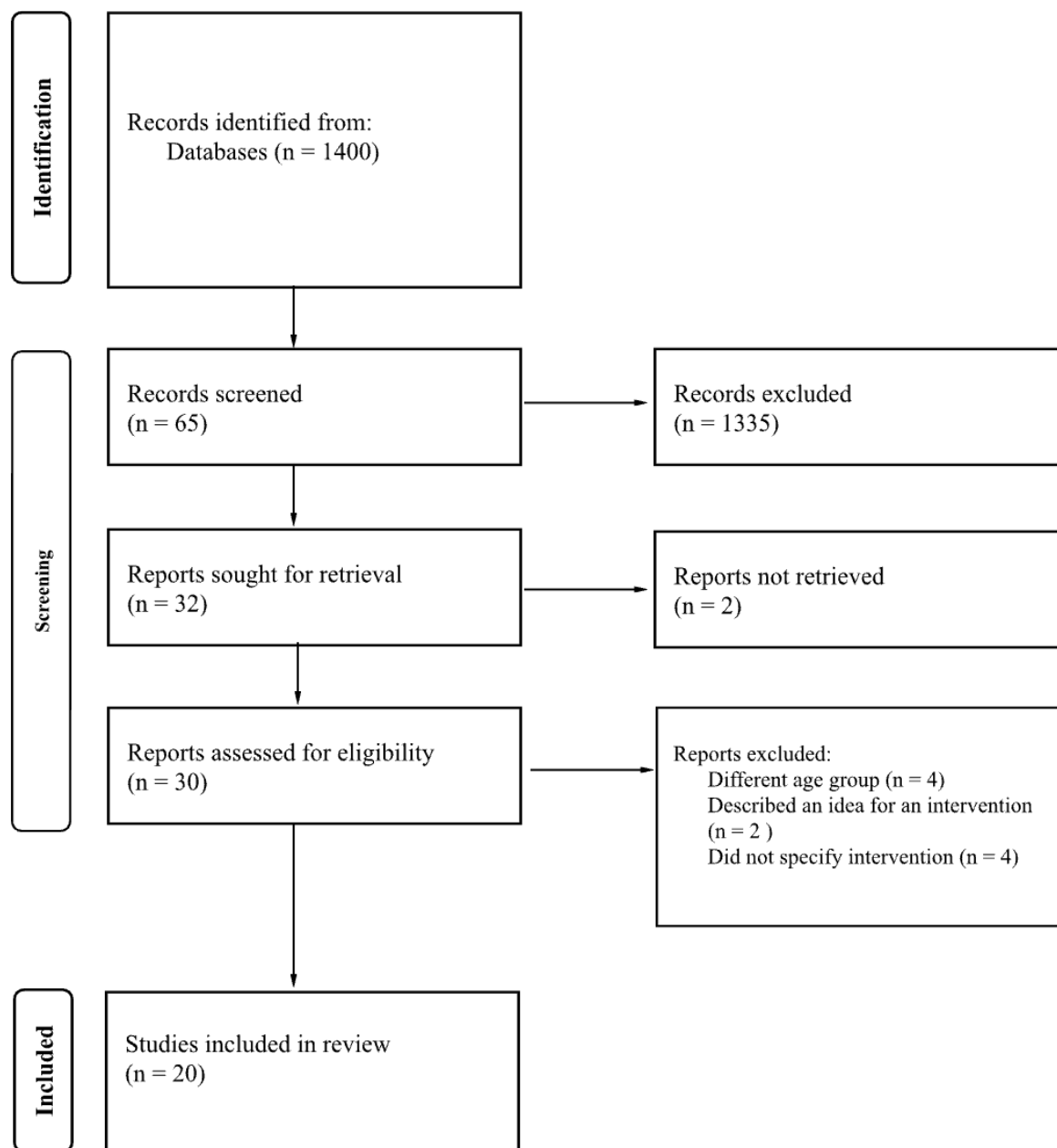
In Figure 1 the study selection process is shown. The database search based on the established keywords yielded 1400 studies. After removing duplicates and books, the remaining records were screened based on title and abstract for relevance and alignment with the keywords used. This process resulted in 65 studies being selected for further assessment. Of these, 33 were excluded from screening based on not meeting the inclusion and exclusion criteria. Of the remaining 32 studies, 2 studies could not be retrieved in full-text writing and were therefore excluded from further screening. After this, 30 studies were assessed for eligibility. 10 articles were excluded: 4 focused on different age groups, 4 did not specify the intervention and 2 only described an idea for an intervention. This resulted in 20 studies being included in the review.

Table 1

Types of interventions

Intervention	Articles
Educational program	Babarović et al. (2019), Choi et al. (2015), David et al. (2020), Gülşen et al. (2021), Hirschi & Läge (2008), Lau et al. (2019),Piepenburg & Fervers (2021), Stipanovic et al. (2017)
Parental involvement	Alfianto et al. (2019), Bakker et al. (2012), Kuijpers et al. (2018), Kush & Cochran (1993), Maftei et al. (2022)

Tests	Jones et al. (2000), Kouni & Koutsoukos (2021), Dahlan et al. (2020)
Group counseling	Cardoso et al. (2022), Maree (2019),
Career talks	Makola et al. (2021)
Portfolio	Mittendorff et al. (2008)

Thematic Analysis

Educational program

Providing students with an educational program is commonly used as an intervention amongst schools worldwide (David et al., 2020). They consist of multiple sessions in which, teachers help students' career awareness by connecting their academic planning and career development (Choi et al., 2015). The main goal is to prepare the students for career readiness and to let them think about their goals, leading to better career choices and educational outcomes (Piepenburg & Fervers, 2021; Stipanovic et al., 2017). Although the articles are based on different theoretical frameworks, they share similarities in structure and goals. Each framework is designed to enhance students' career development by creating self-awareness, strengthening decision-making abilities and broadening their general knowledge of different career pathways. They all use the same elements of self-reflection, guided exploration and structured support to help the students.

Several studies looked into the general effectiveness of an educational intervention program. Gülşen et al. (2021), examined the effects of a five-week program on 80 Cypriot students' future orientation, career adaptability, belief in achieving dreams and life satisfaction.

They found significant positive effects on future orientation, career adaptability and belief in achieving dreams. Life satisfaction was less affected. The program had a different effect on female and male students, with a greater effect on female students regarding future orientation and career adaptability. Hirschi and Läge (2008) looked into the effects of a career program that consisted of 2 sessions, where students had to work with different modules. The 334 students who followed the program had a significant increase in career choice readiness, specifically in career exploration, vocational identity, career decidedness and career planning. However, after a three-month follow-up, the results of students who followed the program were similar to students who did not follow the program.

In the article by Babarović et al. (2019) the program lasted eight weeks and involved 276 Croatian students. They found that the course had a small to medium effect in reducing career decision-making difficulties and a small positive effect on career readiness. There was no effect found on the students' perceived career decision self-efficacy. This is in contrast to the findings in the study of Stipanovic et al. (2017) and Lau et al. (2019). Both investigated the effects of an educational program regarding career self-efficacy and related concepts. According to Stipanovic et al. (2017), who investigated 71 American students, those who followed the program the whole year showed higher motivation and greater effort in school. They were willing to take more challenging courses and felt more prepared for work or college. This is in line with the findings of Lau et al. (2019), who conducted an 8-week study in Malaysia with 139 participants. Results showed an increase in career maturity as well as students reporting to have gained self-knowledge.

The studies of Choi et al. (2015) and David et al. (2020) both looked into the impact of an educational intervention program on career development skills. Choi et al. (2015) split 4605

South Korean participants into different classes for 6 weeks, the first class had both text- and experience-oriented career courses, while the second and third-class students had only text-oriented career courses. They found that the students in the first class had greater career development skills and school success compared to the other classes. Nevertheless, the students in the second and third classes improved their school success as well. Students who did not participate or only participated once did not show any improvements. The study by David et al. (2020), conducted in Romania with 1737 participants consisted of three-hour sessions once a week for the whole school year, found that the educational program had a significant effect on students' self-assessed career-related knowledge and skills. Furthermore, students gained more in knowledge such as understanding their own interests than in practical skills such as preparing a presentation.

Piepenburg and Fervers (2021) investigated the effects of a one-day educational program on gender-stereotypical career choices in 725 German students. Results showed that the educational program increased the likelihood that students consider gender-atypical careers or further education. A slight positive effect on students considering less well-known careers or further education was found. Therefore, the program helped students increase their awareness of different career paths, rather than following gender-stereotypical and well-known careers or further education.

Parental involvement

Parents have a big influence on the career development of their children, even when not realizing it (Alfianto et al., 2019; Bakker et al., 2012; Kuijpers et al., 2018). Schools can help support parents by including them as a career guidance intervention (Alfianto et al., 2019;

Kuijpers et al., 2018). Well-designed parental support can support the child's motivation, self-image, and overall well-being, resulting in improved school performance and reduced dropouts (Kuijpers et al., 2018). However, it is important to note that there is a lack of consistency regarding the conceptualization and operationalization of parental involvement as an intervention (Bakker et al., 2012; Kuijpers et al., 2018).

Bakker et al. (2012) looked at different aspects of parental involvement, such as supporting learning activities, fostering a positive learning environment and communicating with their child about school, by reviewing 111 articles from different countries. They found that parental involvement contributes positively to students' academic achievements as well as their motivation, self-esteem, and self-image. Especially the effects of parental involvement regarding learning at home were the highest. However, parental involvement can also be perceived by the student as negative. Too much parental involvement can negatively influence a student's autonomy and therefore hinder their development. Furthermore, teachers can also positively influence parental involvement by involving them in the students' assignments. However, teachers found it difficult to connect with parents who have a lower socioeconomic status and a different cultural background from them. It was found important that the relationship between teachers and parents is balanced, since too much authority on the teacher's side can have a negative impact on parental involvement.

A similar study was conducted by Kuijpers et al. (2018) in the Netherlands, involving 1101 students, 639 parents and 89 teachers. The study found that most teachers, parents, and students viewed parental involvement interventions as positive. In this case, parental involvement consisted of doing career-related assignments at home as well as a meeting between the teacher, parents and student and parent evenings. Greater parental support was related to

stronger development of career reflection, work exploration, career management and career choice certainty. Moreover, parental involvement was positively improved when connected to school activities. The study also looked into students with a migrant background and students on lower educational levels and found that both groups benefit highly from more parental involvement. The results of the previous studies align with the article of Kush and Cochran (1993), who investigated the parental involvement intervention effect on 64 Canadian students' sense of agency regarding their career choice. The parents were involved by completing career planning workbooks together with the student. The results showed an increased sense of career agency, with more certainty in career direction and less uncertainty indicating higher confidence. Nevertheless, there was no significant improvement in career self-efficacy.

A different result was found by Alfianto et al. (2019) which investigated the influence of parental support and career guidance on the career adaptability of 215 Indonesian students. They found through questionnaires that parent support did not have a significant effect on the career adaptability of students.

The study of Maftei et al. (2022), conducted in Romania with 441 participants, took a different approach by looking at the associations between parental support and students' career exploration and the role of optimism in this. They found a positive relationship between these variables. Emotional support of the parents was most important for self-exploration and instrumental support was closely related to higher environmental exploration. Furthermore, students with higher optimism gained more from parental support regarding active career exploration than less optimistic students.

Tests

Using tests like the self-directed career interest inventories and personality tests can be a valuable intervention in helping with students' career development (Jones et al., 2000; Kouni & Koutsoukos, 2021). It is especially helpful for schools that have limited resources for career development, since tests give career guidance with low time investment and effectiveness (Jones et al., 2000). Tests help students become more self-aware of their interests and personalities and connect these to potential careers, therefore expanding their career options (Jones et al., 2000; Kouni & Koutsoukos, 2021).

The study of Jones et al. (2000), conducted in the USA with 201 participants, investigated the effect and helpfulness of the Career Key test compared to two other career interest tests as a career guidance intervention. Results showed that students perceived the test as positive and it encouraged them to learn more about possible careers. However, there was no difference in the perception of the other two tests, all were viewed by the students as helpful. Furthermore, results showed a minimal impact on the student's career-related behavior, likely due to tests not affecting competencies, such as learning to set goals and decision-making. Moreover, the Career Key test suggested more career pathways than the other tests, however after three weeks there was no significant difference in the consideration of careers among the students taking the different tests. Notably, the control group who did not take any test considered the same amount of possible career pathways as the groups who took the tests. The student's perception of the tests' helpfulness aligns with the findings of Kouni and Koutsoukos (2021) who investigated the student's perception of the Holland Personality Test. Results showed that 84.2 percent of the students strongly agreed with their personality type identified through the test and 73.7 percent strongly agreed with the suggested career pathways. Furthermore, the test gave students the opportunity to confirm, reflect and discover personality and career choices.

Dahlan et al. (2020) investigated the effectiveness of the Short-Domain Career Exploration Inventory, especially focusing on self-information gained through the tests on 94 students from Cyprus. Results showed that students who took the test had significantly higher career choice certainty than the control group. Furthermore, gaining self-information helped students understand more about their self-characteristics. The study found no difference in career choice certainty between female and male students.

Group counseling

Group-based career counseling is a valuable intervention in helping students with their career choice. This encompasses a structured and reflective process that engages students in conversation aiming to help with the exploration of career identity. It gives students a safe space where they can express their concerns and opinions with other students (Maree, 2019). Furthermore, group discussions can facilitate reflectivity and strengthen career decision-making, therefore, stimulating vocational identity (Cardoso et al., 2022; Maree, 2019).

Cardoso et al. (2022), investigated the effects of group counseling for 139 Portuguese students by comparing the experimental group which had eight weekly group counseling sessions to a control group. The counseling sessions focused on developing narrative identity, career adaptability and career decision-making efficacy by discussing various topics. They found that career decision-making self-efficacy, vocational identity and vocational certainty were significantly higher in the experimental group. Moreover, the results remained stable over a period of three months.

Similarly, Maree (2019) investigated the effects of group counseling, consisting of career storytelling and reflection on 57 South African students. They found that group counseling is

effective in encouraging students to approach their future with a sense of hope and optimism. It increased their self-awareness as well as their identity and self-understanding. Moreover, it strengthened students' motivation in their career choice by improving their willingness to set goals. Furthermore, the research also looked at the difference between male and female students. They found that the male students improved more in career decision-making while the female students improved more in their career confidence.

Career talks

Hearing the experiences of people who work in specific fields, known as 'career talks', is a relevant career guidance intervention. It gives students the knowledge that is needed for the labor market and it can alter or strengthen a student's career choice (Makola et al., 2021). Furthermore, professionals can offer students insights and interactions that the school cannot give, because students are more likely to trust the information they receive from the professionals (Makola et al., 2021).

Makola et al. (2021), discussed the effect of career talks on 21 South African students. They found that the speakers had a positive effect on the student's motivation and career knowledge. Therefore, it built their confidence, which influences the self-efficacy of the students. However, students also noted that the talks were too long and that they experienced an information overload. Furthermore, students expected to learn about careers that were not included therefore not obtaining the information that they wanted.

Portfolio

The use of a portfolio is a fairly new practice in the Netherlands. Nevertheless, it can be used as a helpful career choice intervention. A portfolio is a collection of documents that shows the progress of the student (Mittendorff et al., 2008). Therefore, it encourages learning, self-development and responsibility, as students reflect on what they have done and what they have to do to reach their goals (Mittendorff et al., 2008). It is thus designed to assist students in their exploration towards finding a career as well as helping them with expanding their vocational identity (Mittendorff et al., 2008).

Mittendorff et al (2008) explored the usage of portfolios and the perception regarding it, involving 9 teachers, 2 career counselors and 23 students from 3 different Dutch high schools. At the first school, teachers reported that portfolios were an important tool to promote student responsibility but emphasized that they are only effective when there is face-to-face contact with the students. The students described the portfolio as useful for job applications because it is a collection of everything they have done but they did not use it for career decisions. Furthermore, they found the supervision they got regarding their portfolio useful. Teachers at the second school all agreed that a portfolio could help guide students in their career development. However, they noted that there was limited time available to have conversations in the student's portfolios. Most students reported that they did not find the use of portfolios beneficial for their career development because they were not part of career guidance conversations. The teachers at the third school reported that the portfolio was used by students to justify career and school choices. Students reported that they viewed the portfolio as useful for personal development, however, they did not discuss their portfolio with the teachers.

Discussion

This review found that most studies investigating career interventions found a positive effect of the intervention on the students' vocational identity. Most research, 8 out of the 20 articles, was conducted on Educational program interventions. Overall, the findings indicated that this intervention has a significant positive effect on vocational identity, career exploration, career decision-making and career readiness, therefore making the intervention effective (Babarović et al., 2019; Choi et al., 2015; David et al., 2020; Gülşen et al., 2021; Hirschi & Läge, 2008; Lau et al., 2019; Piepenburg & Fervers, 2021; Stipanovic et al., 2017). However, it is important to note that all studies used different interpretations of the educational program. Therefore it is suggested that future research should aim to establish a standardized framework for this intervention, allowing for better comparisons across schools.

For the parental involvement intervention study results were more mixed. Bakker et al. (2012) and Kuijpers et al. (2018) found positive results regarding parental involvement and career development. Furthermore, Maftei et al. (2022) found that it was related to optimism in the students. However, Bakker et al. (2012) also noted that high parental involvement can negatively impact students and Alfianto et al. (2019) found no significant effect of parental involvement on the career adaptability of students. Therefore, it is unclear if this intervention is effective, possibly due to the varying types of parental involvement used across studies and by parents themselves. For future research on this intervention, it is suggested to look into different types of parental involvement, for example controlling or supportive as well as the degree of involvement. While the studies mention this aspect, they do not explore it. This distinction may be important, as different forms of parental involvement might have different effects on the student's career development.

Research on the test intervention indicates positive effects on the student's perception of the tests (Dahlan et al., 2020; Jones et al., 2000; Kouni & Koutsoukos, 2021). However, Jones et al. (2000) did not find an impact on students' behavior regarding career development. It is important to note that all studies used different tests therefore it is hard to make comparisons between the outcomes of the studies, since the different tests all focused on different aspects of vocational identity. This variation makes it difficult to generalize the effectiveness of tests as an intervention in general. For future research, it might be insightful to compare different career tests and evaluate which items on the test contribute most to students' career development. Furthermore, the effectiveness of tests on students' career development behaviors should be examined more.

Group counseling as a career intervention was identified in two studies within the reviewed literature. Both found that group counseling is an effective intervention regarding students' vocational identity (Cardoso et al., 2022; Maree, 2019). Given that only two studies examined this intervention, future research is needed to confirm its effectiveness and generalizability.

The intervention career talks had a positive influence on students' motivation and self-efficacy, however, it also had some negative aspects, as some found the intervention too long or not specific enough for them (Makola et al., 2021). These findings are based on one study therefore highlighting the need for future research to validate the effectiveness of this intervention.

The intervention portfolio showed both strengths and weaknesses. Most teachers found that it helped guide students in their career development. However, students did not use it for

making career decisions (Mittendorff et al., 2008). Future research could look into this discrepancy between students and teachers.

A key finding across all interventions is the inconsistency in how they were implemented since they varied widely in design. This makes it difficult to compare results within an intervention and draw conclusions about the effectiveness of each intervention. This highlights the need for future research to develop a common framework for each intervention. Moreover, the interventions educational program and group counseling share similar components. The educational programs of Babarović et al. (2019), Gülşen et al. (2021) and Hirschi & Läge (2008) all incorporated elements of group counseling such as reflection exercises and group meetings. This raises the question of whether these interventions should be treated differently or as variations of the same approach. The recurring elements across both interventions suggest that their effectiveness may be because of underlying mechanisms, rather than the format in which they are implemented. Future research could look into these underlying mechanisms and identify them to better understand which elements in interventions are beneficial for developing students' vocational identity.

A possible research gap is the lack of differentiation between high school students based on their educational level or track. The studies examined high school students as a general population possibly missing different needs. Future research should examine whether the career interventions have the same effect on different groups of high school students and tailor interventions accordingly. Furthermore, only the articles of Mittendorff et al. (2008) and Kuijpers et al. (2018) include teachers or counselors as participants in their study. This limited representation presents a gap in the literature as teachers and counselors could have valuable insights and are directly involved in implementing interventions. For future research, it is

suggested to incorporate teachers and counselors to gain a more comprehensive understanding of how the interventions work and bring possible problems to light. Furthermore, it was anticipated that studies involving job shadowing or internships would be present as possible interventions, since some high schools in the Netherlands have orientation internships. However, this was not found in the reviewed literature. Future research into these topics as a possible intervention could be beneficial.

Implications

Based on the findings of this review, several implications emerge for career guidance in practice. For schools and career counsellors, it is recommended to implement an educational program intervention, since they have shown a significant positive impact on students' vocational identity (Babarović et al., 2019; Choi et al., 2015; David et al., 2020; Gülşen et al., 2021; Hirschi & Läge, 2008; Lau et al., 2019; Piepenburg & Fervers, 2021; Stipanovic et al., 2017). This intervention can be implemented over a short time period since most programs take 4 to 8 weeks. Therefore, they would be feasible in a school's curriculum. Another intervention option for schools could be the use of career tests, since they are low-cost, easy to administer and take little time, making them highly accessible for schools with limited resources (Dahlan et al., 2020; Jones et al., 2000). While tests alone may not lead to behavioral effects regarding career development, students perceive them positively. They could be used as an additional or first step in helping students develop their vocational identity.

For schools in the Netherlands, it is legally required to incorporate the intervention of portfolios in the school curriculum (De Vries et al., 2024; Gelderblom et al., 2021). However, according to the study on the use of portfolios students do not use it to make career decisions

(Mittendorff et al., 2008). Therefore, it is suggested to incorporate the use of portfolios with other interventions such as educational programs or career counseling to increase their impact, since students found the portfolio more useful while discussing them.

This research has shown that most career interventions are effective in developing students' vocational identity, therefore it is important that they are actively used in practice. While the Netherlands already has some legal requirements in place, schools are still free in how to implement them and most other countries do not have them. This review highlights the need for national guidelines to standardize the design and implementation of career interventions in high schools. Making career interventions accessible to all students while also ensuring the consistency of the intervention. It is recommended according to their effectiveness to make educational programs a part of every school's curriculum.

Limitations

This study had several limitations. Firstly, by focusing on articles written in English and Dutch possible relevant studies could have been excluded in this review. Future research could explore articles in different languages. Secondly, while a scoping review provides a broad overview of the existing literature it is limited by its lack of in-depth analyses of each individual study. Future research could build on this paper by researching the specific intervention types more in-depth. Thirdly, there is a potential for publication bias since the review only included published studies. Therefore, interventions could be over or underrepresented since results are more likely to be published that had a significant result. Furthermore, the included studies were conducted in various countries with different educational systems, however, this study did not compare or take into account these contextual and cultural factors. Future research should examine if these factors

influence the effectiveness of career interventions and explore how different interventions function across various countries.

Conclusion

This scoping literature review aimed to answer the question: What is the effect of career guidance interventions on high school students' vocational identity development? Based on 20 selected studies, 6 interventions were found: Educational program, Parental involvement, Tests, Group counseling, Career talks and Portfolio. The educational program intervention appeared to be most effective, as this intervention was the most studied with consistently positive outcomes. Furthermore, the findings for the intervention parental involvement were the most inconsistent across studies. While the remaining interventions showed positive effects, the number of studies addressing them was limited. How the interventions were implemented varied greatly across studies, making it difficult to compare results and draw conclusions about the effectiveness of each intervention. However, it is clear that most interventions had a positive effect. The interventions educational program and group counseling share similar elements suggesting that their effectiveness may be because of underlying mechanisms, rather than the format of the interventions. Future research should look into these possible mechanisms.

Several research gaps were identified: no differentiation between high school students' educational level or track, only two studies included teachers and counselors, and no studies addressed job shadowing or internships. Addressing these gaps could lead to more targeted and effective career guidance interventions.

For practice, educational programs are recommended due to their significant positive impact on students' vocational identity and feasible implementation over 4 to 8 weeks. The use

of tests should be an accessible option for most schools since they are low-cost, easy to administer and time-efficient. However, tests alone might not lead to behavioral effects regarding career development, they could be used as a first step or addition. In the Netherlands it is obligatory for schools to use portfolios however, students do not use them making career decisions (De Vries et al., 2024; Gelderblom et al., 2021). Therefore it is suggested to incorporate it with other interventions to make them more effective for students. Furthermore, to make career interventions accessible to all students and ensure consistency, guidelines need to be implemented in high schools.

This review gives valuable insights into the effectiveness of career interventions on high school students' vocational identity. However, limitations such as language restrictions, a lack of in-depth analysis, publication bias and the contextual and cultural factors of different educational systems around the world should be addressed and explored in future studies.

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Appendix 1

Table 1

Overview of selected studies

Title	Author	Year of publication	Study design	Sample size	Study setting	Aim of study	Type of intervention	Key findings	limitations	Additional
Career development and school success in adolescents: the role of career interventions	Choi, Y., Kim, J., & Kim, S.	2015	Longitudinal survey	4605 students	South Korea	The influence of career interventions on career development skills (citizenship, self-regulated learning attitudes, career maturity, and self-concept) and school success (problem-solving orientation, academic achievement)	Educational program	The more times students participated in various career education interventions, the more their career development skills matured and the more certain they became about the future of their careers; in turn, this led to greater school success. Students with limited intervention showed the lowest scores in career development.	Use of self report surveys	Explains different interventions
High school learners' views on benefits derived from attending career talks: Need for sound career guidance	Makola, Z. S., Saliwe, P., Dube, I., Tabane, R., & Mudau, A. V	2021	Qualitative study	21 students	South Africa	The purpose of the study was to investigate high school learners' views about the career talks they attended, with the aim to determining what benefits they derived from attending a career expo talk	Career Talks	Career talks are more effective when conducted with professionals in the field sharing their journeys, since that encourages learners to select and pursue similar career paths. There is a need for breaks. Expand existing knowledge of careers. Not all careers mentioned	Small sample size	Mentions Life Orientation teachers.

The effects of middle-school career intervention on students' career readiness.	Babarović, T., Dević, I., & Blažev, M	2019	Experimental	276 Students	Croatia	To explore the effect of a group counselling program on three commonly used vocational outcome measures (career decision self-efficacy, career decision-making difficulties, and career maturity	Educational program	Small to medium size effect on reduction of career-decision making difficulties related to lack of information, and small positive effect on one of the career readiness aspects—independence in decision-making. The intervention had no effects on students' perceived career decision self-efficacy. The results show no intervention effect on career maturity total score, but the small-size effect was found for Independence in Career Decision-making subscale. - No gender differences	Problems with internal validity. The program was conducted in schools after or before students' regular classes.	-
Life design group-based intervention fostering vocational identity, career adaptability, and career decision-making self-efficacy.	Cardoso, P., Duarte, M. E., Pacheco, L., & Janeiro, I. N.	2022	Quasi-experimental design	139 Students	Portugal	To analyse the effectiveness of an LD-based intervention to foster career adaptability, vocational identity, career decision-making self-efficacy, and vocational certainty	Group counseling	significant improvement in vocational identity, career adaptability and career decision making self efficacy - career adaptability scores were most improved - self reflection and structured exercise high rated	Only one coder	Use of life design paradigm

Enhancing a sense of agency through career planning	Kush, K., & Cochran, L.	1993	Pretest-post test study	64 students	Canada	To test the effectiveness of a program for parents to help their adolescents develop a greater sense of agency regarding a career	Parental involvement	Students in experimental group had greater career certainty, less indecision and stronger vocal identity - increased confidence and sense of control - no significant improvement in career self-efficacy	Voluntary based	Uses the Partners Program
Ouderbetrokke nheid bij loopbaan ontwikkeling van vmbo leerlingen	Kuijpers, M. A. C. T., Strijk, M., Van Schie, L., & Lusse, M.	2018	Mixed methods	1101 students 639 parents 89 teachers	Netherl ands	how do students perceive their career and the guidance of their parents and support provided by school to their parents	Parental involvement	parental support increased (motivation and reflection) - confidence increased - meetings were most effective in combination with home assignments and interactive parent evenings	No control group. Self report data	-
Leraren en ouderbetrokke nheid. Een reviewstudie naar de effectiviteit van ouderbetrokke nheid en de rol die leraren hierbij vervullen.	Bakker, J. T. A., Dennissen, E. J. P. G., Dennissen, M. H. J., & Oolbekkin k-Marchan d, H. W.	2013	Review	111 Articles	74 articles from the USA	provide insight in specific types of parental involvement in their child's education and how teachers can enhance parental involvement	Parental involvement	Home-based parental involvement has the most positive impact on students - Teachers that actively engaged parents had more parental participation - Teachers with a positive attitude are more successful with parental involvement	Lot of qualitative studies	

Do students need more information to leave the beaten paths? The impact of a counseling intervention on high school students' choice of major	Piepenburg, J. G., & Fervers, L.	2021	Experimental	725 students	Germany	Evaluated the impact of a counseling intervention on the intended choice of major among high school students in Germany	Educational program	Results show that the intervention has increased the likelihood that participants will consider less well-known or gender-atypical study programs, particularly for high school students with lower starting levels of information. Supplementary analyses confirm that a positive impact on information seems to be one of the relevant causal mechanisms	Generalizability issue	Mentions gender choice stereotypes
Effects of a Career Exploration Intervention on Students' Career Maturity and Self-Concept	Lau, P. L., Chung, Y. B., & Wang, L	2019	Experimental	139 students	Malaysia	The effects of a career exploration intervention (CEI) on career maturity and self-concept among Malaysian high school students	Education program	Career guidance could produce sustained effects regarding self-concept - Students who were exposed to the CEI improved their career maturity and self-concept	Small sample size. Take not into account the complexity of the psychological processes	-

Title	Author	Year	Method	Sample	Country	Purpose	Focus	Findings	Limitations	Notes
A Career Construction Course for High School Students:Development and Field Test	Gülşen, C., Seçim, G., & Savickas, M	2021	Experimental	80 students	Cyprus	To evaluate the effectiveness of a psychoeducational course for high school students based on career construction counseling	Educational program	- students in the course increased their future orientation, career adaptabilities, subjective well-being, and belief in their capacity to achieve their career dreams. The strong effect sizes for future orientation and career adaptability resources were particularly noteworthy outcomes of the course	Lack of follow up. Only tested 2 high schools	CCC assists individuals to make career choices and changes through a narrative intervention that revises and elaborates psychosocial identity
Parental Support and Career Guidance as an Effort to Improve the Career Adaptability of Vocational High School Students	Alfianto, I., Kamdi, W., & Dardiri, A.	2019	Quantitative research	215 students	Indonesia	This study is to see how much parent support and career guidance affects career adaptability of vocational high school students	Parental involvement	The parent support variable does not have a significant effect on the career adaptability of vocational students	No mention	-

Title	Authors	Year	Method	Sample	Country	Aim	Theme	Findings	Limitations	Theory
What can I be when I grow up? Parental support and career exploration among teenagers: The moderating role of dispositional optimism	Maftei, A., Măirean, C., & Dănilă, O.	2022	Qualitative research	441 students	Romania	Investigation of the associations between parental career-related behaviors (i.e., parental support, interference, and lack of engagement), adolescents' career exploration, and the moderating role of dispositional optimism	Parental involvement	Participants that reported high parental support, also reported higher scores for career exploration only when they presented a high level of optimism. Students who experienced a low level of parental support reported a low level of career exploration, regardless of their optimism	Only relied on adolescents' perceptions of their parents' behaviors. Did not take into account for other related individual and family related factors	Mentions the social cognitive theory
The Influence of a Career Pathways Model and Career Counseling on Students' Career and Academic Self Efficacy	Stipanovic, N., Stringfield, S., & Witherell, E.	2017	Qualitative study	71 students	USA	The current study serves to enhance our understanding of the impact of both career pathways programs and career counseling services on students' career self-efficacy	Educational program	The combination of a career pathways model along with targeted career counseling services enhanced students' sense of career and academic self-efficacy by increasing their motivation to complete school, willingness and interest to take more challenging courses, and sense of preparedness for college and work	No comparison group. Not generalizable to different schools	-

Improve Student Career Certainty Using Self-Information: A Career Counseling in the School	Dahlan, S., Idris, E., & Susanto, E.	2020	Quasi experimental	94 students	Cyprus	To examine the effectiveness of counseling interventions using self-information to increase student career certainty	Group counseling	The RIASEC personality typology classifications that were brought about the counselees (students) from the results of their assessment using the S-DCEI into counseling turned out to have been able to significantly enhance career choice certainty	Heterogeneous society	Mentions Holland's theory
Comparing the Effects of the Career Key with and Self-Directed Search and Job-OE Among Eighth-Grade Students	Jones, L. K., Sheffield, D., & Joyner, B.	2000	Experimental	201 students	USA	This study would provide valuable information to practicing school counselors on the CK and the effect of career interests, inventory-focused, career guidance interventions	Tests	Students found the CK helpful and satisfying. ratings were the same by students taking the other two instruments	Not all relevant competencies that might be affected investigated	Explains different tests

Increasing the career choice readiness of young adolescents: an evaluation study	Hirschi, A., & Läge, D.	2008	Experiment al	334 students	Switzer land	A career workshop that applies models of the Cognitive Information Processing Approach and incorporates critical ingredients to promote the career choice readiness of young adolescents was developed and evaluated	Educational program	Participants significantly increased their performance in terms of career decidedness, career planning, career exploration, and vocational identity. A significant increase in career choice readiness after the intervention in terms of the dependent variables career decidedness, career planning, career exploration, and vocational identity.	Not a direct comparison with other already existing interventions	-
Adolescents' Perceptions of Exploring Professional Interests and Preferences using a Psychometric Tool	Kouni, Z., & Koutsouko s, M	2021	Quasi experiment al	19 students	Greece	To investigate adolescents' perceptions concerning professional interests and preferences	Tests	Holland's personality types were consistent with online test classification. Students found test results accurate	Not mentioned	-

Group Career Construction Counseling: A Mixed-Methods Intervention Study With High School Students	Maree, J. G.	2018	Mixed methods	57 students	South Africa	This study investigated the value of integrated qualitative–quantitative group career construction counseling in an independent school context	Group counseling	For the total group, the mean pretest– posttest CAAS-SA total score, as well as all subscale scores, increased significantly. Both boys' and girls' CAAS-SA total scores, as well as their Concern subscale scores, were practically significant and showed great improvement	No control group. Volunteer based. No long term effects	-
Exploring the impact of a career guidance intervention program in schools: Effects on knowledge and skills as self-assessed by students	David, L. T., Truța, C., Cazan, A., Albisser, S., & Keller-Schneider, M	2020	Experimental	1737 students	Romania	To analyse the impact of an educational intervention program designed to develop career management skills in students in secondary education cycle	Educational program	The intervention program had significant effects on enhancing students' knowledge and skills useful in making career decisions, establishing and following career goals. Filling in the pre-test questionnaire at the beginning of the school year did not contribute by itself to the increase of the knowledge and skills self-assessed at the end of the school year	Self report measures. Possible contamination effects	-

| Differences and similarities in the use of the portfolio and personal development plan for career guidance in various vocational schools in The Netherlands | Mittendorff, K. K., Jochems, W. W., Meijers, F., & Brok, P. P. D | 2008 | Qualitative design | 9 teachers 2 career counselors 23 students | Netherlands | In this study perceptions of teachers, career counsellors and students on portfolios and personal development plans for career development were investigated at two vocational schools and one prevocational school. | Portfolio | A majority of the teachers and counselors perceived portfolios and personal development plans as instruments to collect evidence of student development, to stimulate self-responsibility or self-direction of students, to support students in reflecting on identity and future ambitions, and to set up learning goals to achieve this. Portfolios and personal development plans were often used instrumentally, but not to support career dialogues; the instruments were used by students mainly to collect information about themselves, but information was not used in conversations between teachers and students to stimulate reflection; | Small scale study. Voluntary participation | - |