

What factors could improve the career decision-making process among students?

The role of social support and creativity on career exploration and career indecision



Pilou Ruigrok (6623832)

Utrecht University

Master: Social, Health and Organizational Psychology

Specialization: Work & Organizational Psychology

Date: 23-06-2020

Word count: 8051

First supervisor: Lieke Heil

Second supervisor: Meltem Ceri-Booms

Email address: p.p.m.ruigrok@students.uu.nl



Universiteit Utrecht

Abstract

Students often need to make academic or career-related decisions, which can be a challenging and complex process. Being undecided about one's career path is a common obstacle among students (Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013; Guay, Senecal, Gauthier, & Ferner, 2003). Potentially, students who experience more social support and are more creative will be more likely to explore career options, which could result in less career indecision. This study will explore this relationship and investigate if social support has a reinforcing effect on the relation between creativity and career exploration. Data were collected through an online survey with 81 students aged between 16 and 26 years old studying at higher education facilities. The survey measured their social support, creativity, career exploration and career indecision. Findings showed that social support and creativity were both positively associated with career exploration, which suggests that students gathered more information about employment opportunities and about themselves if social support and/or creativity increased. However, such an increase in career exploration was not related to a decrease in career indecision and social support did not enhance the relationship between creativity and career exploration. Nonetheless, findings revealed that more social support was related to less career indecision. Suggestions for practical implementation of the facilitating factors, social support and creativity, are provided for career counselling and career events. The limitations of the study are discussed and recommendations are given to guide future research to gain a better understanding of the career decision-making process among students.

Keywords: Career decision-making, Career decision-making process, Career indecision, Career exploration, Creativity, Social support, Study field, Students.

Content

Abstract	2
1. Introduction	4
2. Research method	11
2.1 Participants	11
2.2 Design and procedure	11
2.3 Measures	12
2.3.1 Demographic variables	12
2.3.2 Social support.....	12
2.3.3 Creativity.....	12
2.3.4 Career exploration.....	13
2.3.5 Career indecision	14
2.4 Statistical analysis.....	14
3. Results	15
3.1 Normality, outliers and assumptions	15
3.2 Descriptive statistics	15
3.3 The relation between social support, creativity and career exploration	16
3.4 The relation between creativity, social career exploration and career indecision	17
3.5 The relation between social support, career exploration and career indecision	18
4. Discussion	20
References	25

1. Introduction

Imagine you are almost graduating from your master's programme at the University, the time you need to make a career-related choice comes close. What could possibly help you in this difficult and challenging decision-making process? Perhaps it is easier to make this decision if you are eager to find out what kind of options are possible within your field of study and interests. This might help to visualize what kind of experiences or work tasks belong to certain jobs. Conceptualize that you can discuss and talk with someone about these different options, after you can make a list of pros and cons. This might help to oversee the situation and to organize your thoughts, which is helpful during a decision-making process. It is possible that the person you talk to about these different options, gives you the feeling that he or she is supporting you in whatever career or academic related choice you are about to make. This might stimulate you to explore the options and may facilitate the career decision-making process, since it gives you confidence if you know someone stands behind you and supports you when you make a choice. Moreover, if you are a creative person, it might be easier to seek for alternatives and options that are possible within your study field. It is conceivable that this facilitates the career decision-making process as well. It might be helpful to investigate if these factors facilitate the career decision-making process. Especially since the main goal of career counselling is facilitating the decision-making process and helping individuals with the difficulties they face with (Gati, Krausz & Osipow, 1996). In the current study, possible facilitators for the decision-making process, like career exploration, creativity and social support, will be explored among students aged between 16 and 26 years old.

Career indecision

Career decision-making focuses on decisions which contain aspects of someone's career. This decision-making process is very important, since career decidedness contributes to subjective career success (Hirschi, 2010). Moreover, research has shown that making appropriate and informed career choices is positively linked with work performance, career success and well-being (Gati, Asulin-Peretz & Fisher, 2012). However, students experience a highly demanding environment, as they need to make career-related decisions that influence their future self in this rapidly evolving world (Shin & Kelly, 2015). Career decision-making poses a challenge for students, since this is a complex process in which many factors and aspects are involved. Abilities, life goals, interests, skills, own expectations and expectations of others are examples of aspects present in the decision-making process (Fabio et al., 2013). Due to the complex process of decision-making, people might experience career indecision (Guay et al.,

2003). Career indecision could be seen as a multidimensional, complex construct, where it is difficult to make a career-related decision and this often comes with being undecided about one's career path (Gordon & Meyer, 2002; Xu & Bhang, 2019). A distinction can be made between indecisiveness and indecision, in which indecisiveness is seen as a chronic inability to make decisions across all sorts of life decisions and situations and is therefore recognized as a personality characteristic (Crites, 1969). In contrast to indecisiveness, career indecision is seen as a temporary state, also referred to as 'developmental career indecision' (Osipow, 1999). Sources of career indecision might be 'lack of information about occupations', 'lack of information about self' and 'uncertainty about the outcomes' (Germeijs & De Boeck, 2003). This last source of career indecision has also been acknowledged by Thaler and Sustein (p. 78, 2009) in their book 'Nudge, Improving Decisions About Health, Wealth and Happiness', *"It is particularly hard for people to make a good decision when they have trouble translating the choices they face into the experiences they will have"*. According to Feldman (2003) indecision will decrease over time if an individual gains more self-knowledge and feedback from the environment. These sources of career indecision are respectively linked to career exploration, where self-knowledge relates to career self-exploration and feedback from environment relates to career environment-exploration. For that reason, career exploration is an important aspect of career readiness for job choice (Phillips & Blustein, 1994).

Career exploration

Career exploration can be explained as the degree to which a person gathers information about employment opportunities (e.g. occupations, jobs and organizations) and about oneself. It consists of cognitive preparation to establish realistic and desirable job opportunities. This preparation is considered as a complex and multi-dimensional process. Career self-exploration is an important aspect in this process, which refers to looking for information about the persons own interests and skills. For instance, thinking about who you are as a person and which personality trait could be useful for a specific profession. Another important aspect is career environment-exploration, referring to the extent a person searches for information about specific activities belonging to certain jobs (Stumpf, Colarelli & Hartman, 1983). Showing explore behaviour like searching for future career opportunities in the study area students follow is an example of career environmental-exploration.

Although it seems likely that career exploration reduces career indecision, evidence for this relationship is scarce. A study from Xu, Hou & Tracey (2014) among Chinese college students explored the relationship of environmental exploration and self-exploration with

different dimensions of career decision-making difficulties. They found that higher levels of career exploration resulted in a lower degree of career indecision (Xu, Hou & Tracey, 2014). In addition, several theoretical frameworks could be used to analyse the relationship between career exploration and career indecision. According to the development theory of Buhler (1933), the exploration phase (age between 15-24) provides orientation activities where people discover their preferences in terms of career opportunities. With these insights in their own interests and skills individuals are able to make the transition from school to work. Also, Super (1953) shows with his self-concept career theory that career exploration is needed for career maturity. Career exploration is a stage from the self-concept career theory, in which adolescents need to think about fields and levels of work and commit to certain training or education that is needed for the selected occupation. If career maturity is reached, young people have developed adequate self-knowledge, like interests and competencies, in relation to careers and acquired enough information to make a career or academic related decision (Ochs & Roessler, 2004). An example of career maturity is the degree in which a person is able to determine if he or she is capable to perform in a certain job. In the current study, it is expected that more career exploration will have a beneficial influence in reducing career indecision. This is because career exploration will provide guidelines in making a thought out decision, by exploring their self-interest and the environment.

Hypothesis 1: Career exploration negatively correlates with career indecision.

Since career exploration might have a positive influence on career indecision, it is important to take into consideration which factors contribute to career exploration. Therefore, this study will also take a closer look at potential factors influencing career exploration, like social support and creativity, which will be explained further on.

Social support

As previously mentioned, support from someone before and during a decision-making process might help to explore the different options and to clear the mind. It might also help in feeling confident while making the decision, since someone stands by and supports them. In this study, social support refers to the extend in which students perceive they receive help, advice and encouragement from their social network (e.g. family and peers) in making academic and career decisions. Weighing the pros and cons of career choices with your parents is an example of what social support for career decisions could look like. As well as having the feeling that you can count on your family and friends to be there if you need support when you make important academic or career choices.

Several studies acknowledged the importance of support from family and peers during career exploration and therefore made greater progress in making career choices (Young, Friesen & Borycki, 1994; Felsman & Blustein, 1999; Saka, Gati & Kelly, 2008). The theory of development from Buhler addresses that other individuals play an important role in the exploration phase, due to communication where they learn more about themselves and the fact that close relationships provide psychological support and security (Buhler, 1933; Felsman & Blustein, 1999). This may indicate stimulation of career exploration through social support. Other studies identified social support as a great potential resource for career specific advice and information (Kracke, 2002; Seibert, Kraimer, & Liden, 2001). In the study of Rogers, Creed and Glendon (2008) social support was found to be a predictive factor for career exploration behaviour. They assessed beliefs and expectations among Australian high school students about career supports and influences for aspects of career development that includes career plans from friends and the social environment and school performance. The usefulness and range of career exploration was also measured among the participants. Students with more social support showed a higher score on career exploration. Several studies focused on social support during career exploration, only few studies focused on the influence of social support in career decisions on career exploration. Hence, it is interesting to examine whether perceived social support in making career decisions is found to be a predictive factor for career exploration behaviour. Additionally, this study will investigate if career exploration mediates the relation between social support and career indecision, to see if there is an influence of social support on career indecision through career exploration.

Hypothesis 2: Social support positively correlates with career exploration.

Hypothesis 3: Career exploration will mediate the relationship between social support and career indecision.

Creativity

In addition to social support, creativity could also be a relevant factor in facilitating the decision-making process. It might help an individual through identifying alternatives and it could facilitate the choice phase in decision-making (Forgionne & Newman, 2007).

Identifying alternatives is closely linked to career exploration, since this aspect is needed in the process of information gathering. According to a longitudinal study of affect and creativity among employees at work from Amabile, Barsade, Mueller and Staw (2005), creativity is important in generating solutions, convenient in generating new ideas towards problems and creative individuals are often able to imagine opportunities. Moreover, being

creative gives people space to discover and explore unique qualities in themselves (McMahon, 2006). This could be beneficial in steering the direction of career or study area where these qualities are useful and applicable. A creative person might show more exploration behaviour, like investigating which alternative professions are possible within their field of study.

Cools, Van den Broeck & Bouckennooghe (2009) investigated the relation between cognitive styles and person-environment fit among employed individuals. The cognitive styles they distinguished were; the knowing style, the planning style and the creating style. People with a creating style prefer a flexible and creative way of decision-making. The authors reported that people with high creating style scores were related to higher career exploration behaviour than people with low creating style scores. Taking into consideration that having the capacity to think creatively is appraised as a good strategy to prepare students for an uncertain future (Vygotsky, 2004), it is worth investigating the influence of creativity on the career decision-making process. It is expected that creativity positively influences career exploration, and therefore possibly decreases career indecision.

Hypothesis 4: Creativity positively correlates with career exploration.

Hypothesis 5: Career exploration will mediate the relationship between creativity and career indecision.

Social support and creativity

Social support and creativity might also be linked to each other. The study of Madjar, Oldham & Pratt (2002) investigated the relation between creative performance and the extent to which employees perceive support for creativity from family and friends (non-work sources) or supervisors and co-workers (work sources) among Bulgarian knitwear industry workers. It was found that social support from friends and family contributes to employees' creative performance. However, this study focused on employees instead of students' creativity. Beghetto & Kaufman (2014) studied the facilitating aspects for a creativity-supportive learning environment in a classroom and concluded that social factors play a major role in the development and expression of student creativity. Following this, it might be interesting if social support also has a positive effect on the relation between creativity and career exploration. Therefore, this study will not focus on the effect of social support on creativity but will investigate if the relation between creativity and career exploration will be stronger when someone perceives social support in career decisions. If you can share and discuss your creative ideas with someone from your social network, you may be more willing and

stimulated to explore your career options. Accordingly, an additional analysis will be performed to investigate the possible interaction effect where social support in career decisions might reinforce the influence of creativity on career exploration.

Hypothesis 6: The relation between creativity and career exploration will be stronger if social support increases.

Research question and relevance

This study aims to advance the understanding of the facilitating factors on the career decision-making process among students. It will be examined if career exploration contributes to a decrease in career indecision. Also, if social support and creativity have a negative effect on career indecision, through the mediating role of career exploration. Additionally, it is interesting to examine if the relation between creativity and career exploration will be stronger if social support increases. A proposed conceptual model of the hypotheses is shown in figure 1.

This study may contribute to a better understanding of the career decision-making process among students and its facilitating factors. It is relevant to investigate this, since little is known about the influence of career exploration on career indecision. Apart from the study of Xu, Hou & Tracey (2014), very few studies have investigated the impact of career exploration on career indecision. Although studies examined the relation between social support and creativity (Beghetto & Kaufman, 2014; Madjar, Oldham & Pratt, 2002), yet no attention has been paid to the influence of social support on the relation between creativity and career exploration. Discovering which factors improve the decision-making process is valuable information, as it is desirable to further improve the process for students who undergo this process individually, as well as students who consult career counsellors. Career counsellor's focus on situational indecision, assessing abilities and interests, clarify short- and long-term career goals and discover career options of the student (Herr, 2003). The information about facilitators for career decision-making might help career counsellor's or researchers to develop career assessment tools and interventions that will help in better transition outcomes for students (Ochs & Roessler, 2004). Moreover, making an informed and appropriate career choice contributes to your career success, work performance and overall wellbeing (Gati, Asulin-Peretz & Fisher, 2012; Hirschi, 2010). This accentuates the importance of investigating what facilitates the career decision-making process. How wonderful would it be if you can work with joy and pleasure, which could be reached through

a successful career decision-making process. As Confucius once said, “Choose a job you love, and you will never have to work a day in your life” (Dubreuil & Forest, 2017).

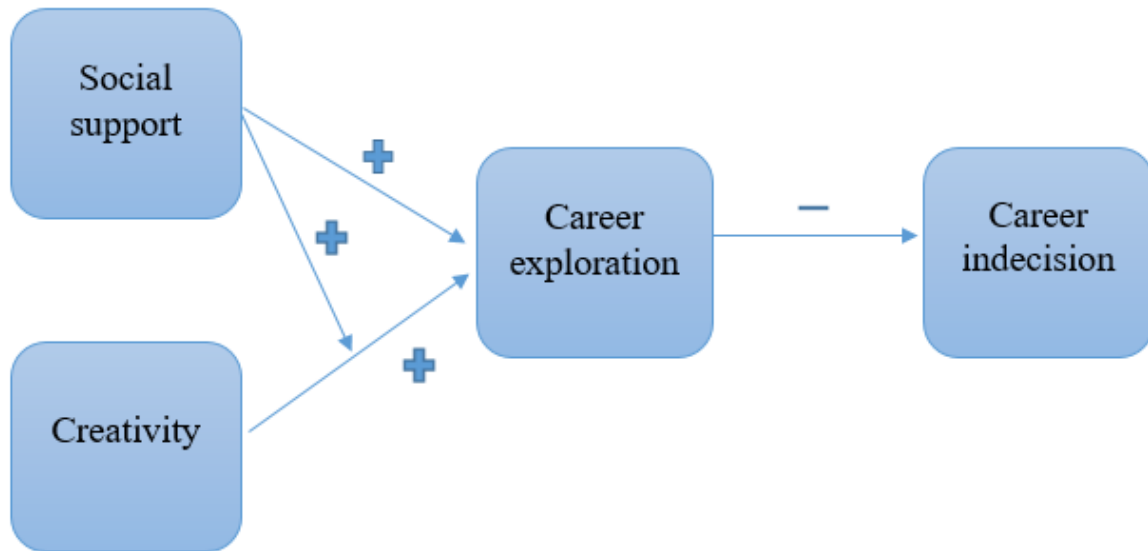


Figure 1: Proposed conceptual model of the relation between social support and creativity on career indecision, through the mediating role of career exploration, and the role of social support on the relation between creativity and career exploration.

2. Research method

2.1 Participants

Following the priori Power analysis of a linear multiple regression model with three predictors, 77 participants were needed in this study to achieve a minimum acceptable power of 0.8 and a medium effect size of 0.15 (η^2), with an alpha of 0.05 (Faul, Erdfelder, Lang, & Buchner, 2007). The initial sample consisted of 94 respondents who completed the survey. In order to participate in this study, participants were required to be enrolled in a higher education facility (University, Higher Professional Education or Intermediate vocational education (MBO)) and had to be between 16 to 26 years old. Furthermore, it was necessary that the participant needed to make a career-related decision within a year from now or that he or she already made a career-related choice. Some participants were deleted as they did not meet the inclusion criteria, which resulted in a final sample of $n = 81$. Regarding demographics of the sample, it mostly consisted of females, with 66 women (81.5%) and 15 men (18.5%). The participants were between 17 and 26 years old, with an average age of 22.27 ($SD = 1.83$). Moreover, most participants (48.1%) were currently following a Master programme at a university in the Netherlands. Thereafter, 37% of the participants followed a Bachelor programme at a university, 10% in Higher Professional Education, and 1.2% as a PhD candidate. Most of the participants followed a study program in the Social and Society field (42%), for example Psychology. From the participants, 42% ($N = 34$) already made a choice about their future career. The other 58% ($N = 47$) did not made a choice about their future career yet but needed to make this decision within a year from now.

2.2 Design and procedure

The design of this quantitative study was cross-sectional with a single group of students. The students were reached through own networks and several online platforms, like LinkedIn and the study platform of the Faculty of Social Sciences, from Utrecht University. In addition, participants were asked to forward the survey to individuals who were students in the required age group as well, which is also referred to as snowball sampling. The survey was assessed at one point in time and had to be done digitally at home. The importance of anonymity and confidentiality were addressed at the beginning of the survey, as well as a summary with the purpose of the study. While continuing the survey, respondents gave their informed consent for their data to be used in the study. Then, general questions about the person's characteristics were asked like age and gender. If someone's age was not meeting the specific

criteria, the respondent received a message that the survey would stop at that moment. After, more specific study related questions followed. Also questions about the participant's creativity and perceived social support for academic or career choices were assessed. The survey ended with questions about career exploration and career indecision. The survey was focused on self-report measure, which means asking for the participant's behaviour or thoughts on the specific topics. After completing the survey, participants were advised to seek further assistance if they needed at the Career Services from their higher education facility.

2.3 Measures

2.3.1 Demographic variables

To show characteristics of the study population, several demographic variables have been taken into account, including age, gender, education level, and field of study. Also, whether the participant needed to make a career-related decision within a year from now or that he or she already made this decision was asked.

2.3.2 Social support

Social support was measured with the subscale support of the Influence of Others on Academic and Career Decision Making Scale (IOACDS). The support scale assessed the help, advice and encouragement individuals receive from their social network in making career or academic related decisions. The scale consisted of 8 items, ranging from 1 (strongly disagree) to 5 (strongly agree). High score reflected high support of others on academic and career decision-making. The scores ranged from 8 to 40. An example of an item of the support scale; *'There is someone I can count on to be there if I need support when I make academic and career choices'*. In this study, the Cronbach's alpha was .85, giving a good internal consistency. Also, good validity and reliability were shown (Nauta & Kokaly, 2001).

2.3.3 Creativity

Creativity was assessed with the Creativity Styles Questionnaire-Revised (CSQ-R) from Kumar, Kemmler & Holman (1997). Since this questionnaire consists of 76 items with various domains, this study only focused on specific questions from several subdomains: global measure of creativity capacity (2 items), use of techniques (1 item) and use of other people (1 item). Global measure of creativity capacity assessed to which extent a person perceives himself/herself as being creative with two questions; *'I consider myself to be a*

creative person’ and *‘I am in general engaged in creative type of things on a regular basis’*. Use of techniques measured the extent to which a person uses techniques to facilitate his/her creative work. The question which was asked; *‘I often use the technique of brainstorming (type of creativity) to come up with alternatives’*. For the subscale use of other people the item *‘When I have a new idea, I tend to discuss it with someone to determine its potential for success’* was used. The questionnaire has shown to be reliable and valid (Lack, Kumar & Arevalo, 2003). The internal consistency measured with Cronbach’s Alpha in this study was questionable ($\alpha = 0.65$) if item four (*‘When I have a new idea, I tend to discuss it with someone to determine its potential for success’*) was taken into account. Accordingly, item four has been eliminated in calculating the total score of creativity. After, the Cronbach’s alpha was .73, meaning the internally consistency was acceptable. Thus, three items were added together and rated on a 5-point scale (1=strongly agree to 5= strongly disagree), the score ranged from 3 to 15. After reversing the items, higher score indicated higher creativity.

2.3.4 Career exploration

Career exploration was investigated by using the Career Exploration Survey (CES). Two subscales from the Career Exploration Survey (CES) were used; the career self-exploration scale (consisted of 5 items) and the career environment-exploration (consisted of 6 items) which measured the tendency to engage in such behaviours in the past three months. These subscales were chosen as these focuses on the specific parts of career exploration behaviour that the current study is interested in. The questions were answered on a 5-point Likert scale ranging from 1 (very little) to 5 (very much). The score of the subscale career self-exploration ranged from 5 to 25, with a high score indicating high self-exploration. The career environment-exploration scale score ranged from 5 to 30, with a high score indicating high career environment-exploration. *‘To what extent have you reflected on how your past integrated with your future career in the past three months?’* is an example of an item from the self-exploration scale (Stumpf, Colarelli & Hartman, 1983). Since the total levels of career exploration were relevant for the research questions, both sets of items from career self-exploration and career environment-exploration subscale were combined into a total scale score of career exploration, ranging from 6 to 55. Good validity and reliability were shown (Stumpf, Colarelli & Hartman, 1982). Moreover, the Cronbach’s alpha in this study was .88, meaning the items were internally consistent.

2.3.5 Career indecision

Career indecision was measured using the Career Indecision Profile in short (CIP-short) from Xu & Tracey (2017). This questionnaire has four subscales; Neuroticism/Negative Affectivity (NNA-S), Choice/Commitment anxiety (CC-S), Lack of Readiness (LR-S) and Interpersonal Conflicts (IC-S). With 20 items rated on a 6-point Likert scale ranging from 1 (completely disagree) to 6 (strongly agree) for example; '*Hard to make decisions without help*'. The score of career indecision ranged from 20 to 120, higher scores indicated more career indecision. Reliability and validity of the CIP-short questionnaire were supported (Xu & Tracey, 2017). The Cronbach's alpha in the current study was .81, meaning the items were internally consistent.

2.4 Statistical analysis

The research questions were tested using *Statistical Program for Social Sciences (SPSS)* version 25 for Windows. First, data has been checked for outliers and normality (e.g. skewness and kurtosis) and the assumptions for the statistical analyses were examined. Using Cronbach's alpha, internal consistencies of all questionnaires were measured. Descriptive statistics (Mean, SD and range) and Pearson correlations between variables were used to describe the measured variables. To investigate whether social support and creativity are both positively associated with career exploration, a multiple regression analysis was performed with method ENTER. A moderated mediation analysis was done to investigate the relationship between creativity and career indecision and the mediating role of career exploration, while also taking into account the moderated effect of social support on the relation between creativity and career exploration. To explore whether career exploration mediates the relationship between social support and career indecision, a mediation analysis was performed with creativity as the controlling variable. The (moderated) mediation analyses have been performed with the PROCESS macro for SPSS (Hayes, 2017).

3. Results

3.1 Normality, outliers and assumptions

The variables social support, creativity, career exploration and career indecision were all normally distributed and have been checked for skewness and kurtosis. In this study, no outliers were detected, based on the approach that item scores were not allowed to deviate more than three times the Interquartile Range (Hoaglin, Iglewicz & Tukey, 1986). Before performing the statistical analyses, assumptions regarding variance, linearity, homoscedasticity, multicollinearity were checked, and all comply with the requirements (Field, 2013). An example of one of the assumptions is the prerequisite that multicollinearity (the correlation between independent variables) is not present. This is visible in the overview of correlations in table 1, where social support and creativity (as independent variables for the multiple linear regression) have a negligible correlation, $r(81) = -.02, p = .841$.

3.2 Descriptive statistics

The average score on social support was 31.32 ($SD = 4.85$) with a score range from 8 to 40, implying that most participants receive social support in making career-related decisions to a high extent. Regarding creativity, participants had a mean score of 9.91 ($SD = 2.48$) with a score range from 5 to 15. The mean score on career exploration was 33.46 ($SD = 7.67$) with a score range from 11 to 55. Interestingly, mean scores of career exploration did not significantly differ between participants who already made a career choice ($M = 33.27, SD = 8.02$) and participants who did not made this choice ($M = 33.60, SD = 7.49$), $t(79) = -.191, p = .849$. Participants reported career indecision to a moderate extent ($M = 57.77, SD = 10.54$), whereas the score range for career indecision was 20 to 120. Participants who had already decided on their career did not report significantly lower on career indecision ($M = 55.9, SD = 9.08$) than participants who had not decided yet ($M = 59.09, SD = 11.39$), $t(79) = -1.33, p = .187$. The score of creativity significantly differed between gender, $t(79) = -2.10, p = .049$, with a mean score for men of 8.6 ($SD = 2.75$) and mean score for women of 10.21 ($SD = 2.33$). Regarding the choice about future career, 46.7% of males and 40.9% of females already made a choice.

A summary of all Pearson correlations between variables can be found in table 1. A positive correlation was found between age and career exploration, $r(81) = .44, p = .000$, indicating that an increase in age is related to more career exploration. Age also significantly correlated with career indecision, meaning an increase in age is related to less career indecision, $r(81) = .22, p = .044$. Career exploration and social support, $r(81) = .28, p = .010$, and career exploration and creativity, $r(81) = .30, p = .007$, both showed a positive correlation. Implying that more social support in making career-related decisions and more creativity are related to more career exploration. A negative correlation was found between social support and career indecision, $r(81) = -.44, p = .000$, indicating that more social support in making career-related decisions is related to less career indecision.

Table 1

Pearson correlations of measured variables

Variables	1.	2.	3.	4.	5.
1. Age	-	-	-	-	-
2. Social support	.108	-	-	-	-
3. Creativity	-.086	-.023	-	-	-
4. Career exploration	.442**	.284*	.296**	-	-
5. Career indecision	-.224*	-.435**	-.005	.005	-

* $P < 0.05$

** $P < 0.01$

3.3 The relation between social support, creativity and career exploration

A multiple linear regression was calculated to predict the career exploration behaviour of students based on their social support and creativity. Table 2 shows the results of the multiple linear regression analysis for social support and creativity (as independent variables) on career exploration (as dependent variable). A significant regression equation was found, $F(2, 78) = 8.10, p = .001$ with an R^2 of .17. Returning to the hypotheses posed at the beginning of this study, it is now possible to state that hypothesis two, social support positively correlates with career exploration, as well as hypothesis four, creativity positively correlates with career exploration, are accepted. Since both social support and creativity are significant predictors of career exploration.

Table 2

Multiple linear regression analysis for career exploration

Variable	B	SE B	β	ΔR^2	<i>p</i>
Social Support	.459	.163	.291	.172	.006*
Creativity	.936	.319	.302	.172	.004*

* $P < 0.05$ ** $P < 0.01$

3.4 The relation between creativity, social career exploration and career indecision

Moderated mediation analysis was performed to test whether career exploration mediates the relationship between creativity and career indecision, and to investigate the potential moderating effect of social support on the relation between creativity and career exploration. PROCESS macro for SPSS with model 7 has been used with a bootstrap estimation of 5000, with creativity as the predictor variable, social support as the moderator, career exploration as mediating variable and career indecision as outcome variable (Hayes, 2017). Thereby analysing the overall moderated mediation model of this study, the results of this model are shown in table 3. First, the effect of social support on career exploration was calculated, social support has a significant direct effect on career exploration, $b = .48$, $t(77) = 2.75$, $p = .007$. Also, the direct effect of creativity on career exploration showed a significant positive relation, $b = .93$, $t(77) = 2.89$, $p = .005$. These effects are also shown in the results of the multiple linear regression analysis. After, the total effect of creativity on career indecision was calculated, this relation was not significant, $b = -.02$, $t(79) = -.03$, $p = .973$. Regarding the association between career exploration and career indecision, there was no significant direct effect, $b = -.01$, $t(78) = -.03$, $p = .976$. Hypothesis one stated that career exploration negatively correlates with career indecision. This hypothesis was rejected since the Pearson correlation between those variables and the direct effect of this mediation analysis showed no relation. The indirect effect was tested using non-parametric bootstrapping. This indirect effect was divided into three levels of moderation by social support; low, average and high. In this analysis, the indirect effect (IE = $-.0042$, $-.0052$) of creativity on career indecision was statistically non-significant for all three levels of moderation: 95% CI = $[-.373, .315]$. Contrasting to the expectations, career exploration did not play a mediating role in the relation between creativity and career indecision and so hypothesis five was rejected as well. The results also showed that social support did not have a moderating effect on the relation between creativity and career exploration, $b = -.02$, $t(77) = -.30$, $p = .762$, which resulted in

the rejection of hypothesis six. In conclusion, it is possible to state that there was no moderated mediation found in this study.

Table 3

Results of moderated mediation analysis (overall model)

	<i>b</i>	SE B	<i>t</i>	95% CI
Direct effect on career exploration				
Social support	.476**	.173	2.75	[.132, .821]
Creativity	.930**	.322	2.89	[.289, 1.571]
Direct effect of creativity on career indecision				
	-.017	.504	-.034	[-1.021, .987]
Conditional indirect effects of creativity on career indecision				
	IE	Boot SE		Boot CI
Low social support	-.0052	.158		[-.373, .277]
Average social support	-.0046	.136		[-.284, .267]
High social support	-.0042	.139		[-.278, .315]
Index of moderated mediation	.0001	.0118		[-.0184, .0320]

* $P < 0.05$

** $P < 0.01$

3.5 The relation between social support, career exploration and career indecision

Additional mediation analysis was carried out to test the indirect effect of social support on career indecision. With social support as the independent variable, career indecision as the dependent variable and career exploration as the mediating variable. Creativity was also included in this analysis as a controlling variable. In order to do this, PROCESS macro for SPSS with model 4 has been used with a bootstrap estimation of 5000 (Hayes, 2017). The results are displayed in table 4. First, the total effect of social support on career indecision was calculated. This is a negatively and significantly relation; $b = -.947$, $t(79) = -4.34$, $p = .001$, meaning higher social support in making career-related decisions is related to lower career indecision. The direct effect of social support on career exploration showed a significant positive relation ($b = .459$, $t(79) = 2.82$, $p = .010$). However, the direct effect of career exploration on career indecision was positive and non-significant ($b = .205$, $t(78) = 1.53$, $p = .223$). The indirect effect was tested using non-parametric bootstrapping. In this analysis the indirect effect (IE = .094) of social support on career indecision was statistically non-

significant: 95% CI= [-.031, .265]. Even though social support had a significant direct effect on career exploration and on career indecision, the indirect effect of social support on career indecision had not been found. Therefore, it is not possible to state that career exploration had a mediating role in the relation between social support and career indecision, resulted in the rejection of hypothesis three.

Table 4

Results of mediation analysis

	<i>b</i>	SE B	<i>t</i>	95% CI
Total effect on career indecision				
Social support	-.947**	.221	- 4.28	[-1.388, -.506]
Control variable: Creativity	-.064	.434	-.15	[-.927, .799]
Direct effect on career exploration				
Social support	.459**	.163	2.82	[.135, .784]
Control variable: Creativity	.936**	.319	2.93	[.301, 1.572]
Direct effect on career indecision				
Career exploration	.205	.153	1.34	[-.100, .509]
Indirect effect on career indecision				
	IE	Boot SE		Boot CI
Social support	.094	.073		[-.031, .265]

*P<0.05

**P<0.01

4. Discussion

The study aimed to advance the understanding of the career decision-making process among students aged between 16 and 26 years, considering the complexity of the process in which many factors and aspects are involved. Little is known about the influence of career exploration on career indecision and to date no attention has been paid to the influence of social support on the relation between creativity and career exploration. The current study investigated if social support and creativity have a negative effect on career indecision, through the mediating role of career exploration. Additionally, this study assessed if social support has a reinforcing effect on the relation between creativity and career exploration.

The results of this study showed several interesting findings. As expected in hypotheses two and four, both social support and creativity are positive significant predictors for career exploration. In other words, students gathered more information about employment opportunities and about themselves if social support and/or creativity increased. These findings are both consistent with previous literature (Rogers, Creed & Glendon, 2008; Cools, Van den Broeck & Bouckennooghe, 2009). Social support and creativity may provide different perspectives and insights through which students are more willing to think outside the box, see opportunities and discover their preferences. Hypothesis one stated a negative correlation between career exploration and career indecision. However, this correlation was not found in the current study. It contradicts the research of Xu, Hou & Tracey (2014), who found that higher levels of career exploration resulted in a lower degree of career indecision. According to the mediation analyses, career exploration does neither have a mediating role in the relation between social support and career indecision, and nor in the relation between creativity and career indecision. These findings are contradicting what was expected as hypotheses three and five in this study. The moderating effect of social support on the relation between creativity and career exploration has not been found, which was stated in hypothesis six. The mediation analysis revealed an additional finding, whereas a significant direct relation between social support and career indecision was found. More social support was related to less career indecision among the participants. This might be related to a finding from the study of Park, Kim, Kwon and Lee (2018), where they found that the combination of social support and positive affect led to less career choice anxiety, where career choice anxiety might predict career indecision. Perhaps social support gives direct confidence and a comforting feeling to an individual if he or she needs to make a career-related decision. This suggests that it is worth trying to increase social support for students in career decision-making, thereby helping them as it directly results in less doubts and challenges in making a decision.

There are several possible explanations for the current findings. First, a possible explanation for the lack of effect between career exploration and career indecision may be that there are two different groups of people in the sample in the way they react to career exploration. One group might benefit from career exploration, as it decreases career indecision through the exploration of options and having an overview of the possibilities. However, another group might experience problems due to the ‘choice overload phenomenon’. Individuals may find their decisions to be more complex, frustrating and difficult when they are given a larger set of options (Haynes, 2009; Chernev, Böckenholt & Goodman, 2015). If someone has explored possibilities for career opportunities and sought information on specific areas of career interests, a lot of career choices are obtained, which may result in more difficulties regarding career decision-making due to the high amount of choices. Those two groups differ in the way they react to career exploration and this gives opposing outcomes regarding career indecision. The different reactions may cancel each other out which may result in no effect at all of the relation between career exploration and career indecision. Secondly, the current data collection was only cross sectional, meaning that the measures all took place at one point in time. This limits the possibility to examine the potential influence of career exploration on career indecision on the long term. Especially since the study of Perdrix, Stauffer, Masdonati, Massoudi and Rossier (2012) found that career indecisiveness only improved in the long term. Supposedly, the influence of career exploration on career indecision will become visible after a period of time, when the individual had space to let all the information from career exploration sink in in order to make a decision. A reasonable approach to tackle this issue could be to investigate these aspects in a longitudinal study, further addressed in the recommendation part. Also, the data collection took place halfway through the academic year, which might have influenced the obtained results. This as it could naturally be a period for students to explore their options and possibilities regarding their career. However, since there were a couple of months left until the end of the academic year, participants may not have felt the need to decide. Perhaps the effect of career exploration on career indecision would have been more evident at the end of the academic year. Next to this, Cropley (2000) addressed that creativity is such a multidimensional concept, that measurements should be based on several tests, rather than relying on a single score. In our study, creativity was measured with three question items indicating a single score. Perhaps the other effects appeared to be more clearly if creativity had been assessed with multiple tests. For example, with the Test of Creative Thinking (TTCT) by Torrance (1972), elaborated with the Creativity Checklist (CCL) from Johnson

(1976) where observers rate people's creativity behaviour. Finally, the measurement of career indecision needs to be discussed. In the sample, 42% already made a career-related choice. Although it seems likely that the career indecision scores would be lower for this group compared to the group who did not made a choice yet, this was not the case in our study. Perhaps the measurement of career indecision was not specific enough to identify the differences between those groups, which could have resulted in lower effects of the relations. The Career decision-making difficulties questionnaire (CDDQ) may allow for a more specific measure of career indecision since multiple sources (lack of readiness (LR), lack of information (LI), and information inconsistency (II)) of career decision-making difficulties are assessed (Gati, Krausz, & Osipow, 1996).

Limitations

Several limitations of the study might have influenced the obtained results. Firstly, all data was retrieved from first- and second-line networks. The participants were all more or less from the same age and phase in life, which resulted in quite a homogenous sample in which women were overrepresented. As a consequence, the data might be less generalizable for the overall study population and might have compromised the external validity of the results. In addition, the methods of recruitment might have resulted in selection bias, where individuals who may have been generally more interested in the research topic career decision-making participated. Maybe the participants are more engaged with this topic and are busy identifying what they want to do, resulting in a high career exploration score. Even though they explore their career options, they may still experience challenges with career decision-making if they had no time in between to oversee the obtained information from career exploration. This might have increased the career indecision level and might resulted in less effect of the influence of career exploration on career indecision. Secondly, all constructs were assessed with self-report measures. This type of data collection might have triggered socially desirable bias within respondents, meaning that respondents for instance say they have been exploring possible career possibilities in the past three months more often than in fact someone did (Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

Recommendations

A longitudinal study to further examine the career decision-making process among students is recommended. This type of study design makes it possible to look at the process of career decision-making, instead of being limited to measures at one point in time. It may be interesting to assess the relation between career exploration and career indecision over time, and to examine how these variables relate with each other at various moments. This makes it possible to see if career indecision differs in time, for instance when students almost finish their studies. Moreover, it may be worth investigating if there is an average amount of time needed for students to make a decision based on the career exploration one undertook. The answer to this research question could be used as a guideline to inform students about the amount of time they need to have to eventually make an informed career-related decision. It may also be interesting to measure if variables changed over time for students who consulted career counsellors who applied facilitating factors like creativity and social support in their consults. Using interviews is advised for the recommended longitudinal study, to examine if other factors played a role in the decrease of career indecision among students, since those factors could be helpful for students who still experience career indecision. The study might also assess if individuals who at the beginning of the study already made a career-related choice develop differently than the ones who did not make a choice yet. Furthermore, the longitudinal study might investigate if there is a difference in how individuals react to career exploration, where some individuals may experience benefits from career exploration and others elevated levels of stress regarding decision-making. Additionally, it would be interesting to examine if those two groups show different responses regarding career indecision. Future research is recommended to measure variables with a combination of self-report questionnaires and observation of certain behaviour, possibly added with interviews for further into depth data to compensate for socially desirable bias. The data collected in the longitudinal study will extend the amount of data and could thereby strengthen the dataset and the analyses in identifying factors associated with career indecision among students. Further research in career decision-making will allow for a better understanding of how students collect information regarding knowledge of work skills and work roles, how they figure out their vocational preferences and what helps them in making an informed career-related decision.

Practical implications

Despite the limitations, the current study was useful to gain more insight in the career decision-making process among students. It may be helpful to know for students, as well as career counsellor's, that social support and creativity both stimulate career exploration. Making people aware of these facilitators could already be an achievement to help students with career exploration. Next to that, it could be useful to discover how social support and creativity could be implemented in the career counselling process. This might be translated into specific intervention programs or guidelines for career counsellors. A training which explicitly triggers the creativity within students, to think and talk open minded about options related to career is recommended, since creativity within a person can be learned and improved (Forgionne, 2007). For instance, let students create a mood board with their favourite subjects of their study field. Following up with a discussion regarding individual preferences with their fellow students is an example of a career training. This could be provided at higher education facilities or even at secondary schools, to start early with creating awareness for the challenging career decision-making process. Also, students might stimulate other students to use these facilitating factors or strategies to further explore their career possibilities. This impact might be put in motion with the social support and peer feedback students give each other. Additionally, expressing the importance of social support is important, since this has a positive influence on both career exploration and career indecision. Perhaps this could be done by informing parents, students and teachers about this important aspect during career events, annual open days or newsletters. Providing extra attention to the facilitating aspects for the career decision-making process among students could be a great starting point to help students with those difficult career choices.

Conclusion

Taken together, the current study provides insight into the importance of creativity and social support for career exploration among students between 16-26 years old. It also accentuates the relevance of social support on career indecision for students who need to make an academic or career-related choice. It is advised to implement those facilitators in career counselling process and other career-related events. Further research is needed to amplify on this topic and should consider our recommendations, after all carrying out a job you like is important for all of us.

References

- Amabile, T.M., Barsade, S.G., Mueller, J.S. and Staw, B.M. (2005), "Affect and creativity at work", *Administrative Science Quarterly*, Vol. 50 No. 3, pp. 367-403
- Beghetto, R. A., & Kaufman, J. C. (2014). Classroom contexts for creativity. *High Ability Studies*, 25(1), 53-69.
- Buhler, Charlotte. *Der menschliche Lebenslauf als psychologisches Problem*. Leipzig: Hirzel, 1933
- Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, 25(2), 333-358.
- Cools, E., Van den Broeck, H., & Bouckennooghe, D. (2009). Cognitive styles and person–environment fit: Investigating the consequences of cognitive (mis) fit. *European Journal of Work and Organizational Psychology*, 18(2), 167-198.
- Crites, J.O. (1969). Vocational psychology. New York: McGrawHill
- Cropley, A. J. (2000). Defining and measuring creativity: Are creativity tests worth using?. *Roeper review*, 23(2), 72-79.
- Dubreuil, P., & Forest, J. (2017). Choose a Job You Love, and You Will Never Have to Work a Day in your Life. *Leading to Occupational Health and Safety: How Leadership Behaviours Impact Organizational Safety and Well-Being*, 281.
- Fabio, A. D., Palazzeschi, L., Asulin-Peretz, L., & Gati, I. (2013). Career indecision versus indecisiveness: Associations with personality traits and emotional intelligence. *Journal of Career Assessment*, 21(1), 42-56.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- Feldman, D. C. (2003). The antecedents and consequences of early career indecision among young adults. *Human Resource Management Review*, 13(3), 499-531.
- Felsman, D. E., & Blustein, D. L. (1999). The role of peer relatedness in late adolescent career development. *Journal of Vocational Behavior*, 54, 279–295.
- Field, A. (2013). Discovering statistics using IBM SPSS statistics. sage.
- Forgionne, G., & Newman, J. (2007). An experiment on the effectiveness of creativity enhancing decision-making support systems. *Decision Support Systems*, 42(4), 2126-2136.
- Gati, I., Krausz, M., & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology*, 43, 510-526

- Gati, I., Asulin-Peretz, L., & Fisher, A. (2012). Emotional and personality-related career decision-making difficulties: A 3-year follow-up. *The Counseling Psychologist*, 40(1), 6-27.
- Germeijs, V., & De Boeck, P. (2003). Career indecision: Three factors from decision theory. *Journal of vocational Behavior*, 62(1), 11-25.
- Gordon, L., & Meyer, J. C. (2002). Career indecision amongst prospective university students. *South African Journal of Psychology*, 32(4), 41-47.
- Guay, F., Senecal, C., Gauthier, L., & Ferner, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology*, 50, 165–177.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Haynes, G. A. (2009). Testing the boundaries of the choice overload phenomenon: The effect of number of options and time pressure on decision difficulty and satisfaction. *Psychology & Marketing*, 26(3), 204-212.
- Herr, E. L. (2003). The future of career counseling as an instrument of public policy. *The Career Development Quarterly*, 52(1), 8-17.
- Hirschi, A. (2010). The role of chance events in the school-to-work transition: The influence of demographic, personality and career development variables. *Journal of Vocational Behavior*, 77(1), 39-49.
- Hoaglin, D.C., Iglewicz, B., and Tukey, J.W. (1986). Performance of some resistant rules for outlier labeling, *Journal of American Statistical Association*, 81, 991-999.
- Johnson, R. A. (1976). Teacher and student perception of student creativity. *Gifted Child Quarterly*, 20(2), 164-167.
- Kracke, B. (2002). The role of personality, parents and peers in adolescents. *Journal of Adolescents*, 25, 19-30
- Kumar, V. K., Kemmler, D., & Holman, E. R. (1997). The Creativity Styles Questionnaire—Revised. *Creativity Research Journal*, 10, 51-58.
- Lack, S. A., Kumar, V. K., & Arevalo, S. (2003). Fantasy proneness, creative capacity, and styles of creativity. *Perceptual and Motor Skills*, 96(1), 19-24.
- Madjar, N., Oldham, G. R., & Pratt, M. G. (2002). There's no place like home? The contributions of work and nonwork creativity support to employees' creative performance. *Academy of Management journal*, 45(4), 757-767.
- McMahon, M. (2006). Creativity and career counselling. *Career counselling: Constructivist approaches*, 150-160.

- Nauta, M. M., & Kokaly, M. L. (2001). Assessing role model influences on students' academic and vocational decisions. *Journal of career assessment*, 9(1), 81-99.
- Ochs, L. A., & Roessler, R. T. (2004). Predictors of career exploration intentions: A social cognitive career theory perspective. *Rehabilitation Counseling Bulletin*, 47(4), 224-233.
- Osipow, S. H. (1999). Assessing career indecision. *Journal of Vocational behavior*, 55(1), 147-154.
- Park, I. J., Kim, M., Kwon, S., & Lee, H. G. (2018). The relationships of self-esteem, future time perspective, positive affect, social support, and career decision: A longitudinal multilevel study. *Frontiers in psychology*, 9, 514.
- Perdrix, S., Stauffer, S., Masdonati, J., Massoudi, K., & Rossier, J. (2012). Effectiveness of career counseling: A one-year follow-up. *Journal of Vocational Behavior*, 80(2), 565-578.
- Phillips, S. D., & Blustein, D. L. (1994). Readiness for career choices: Planning, exploring, and deciding. *Career Development Quarterly*, 43, 63-73.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, 88(5), 879.
- Rogers, M. E., Creed, P. A., & Glendon, A. I. (2008). The role of personality in adolescent career planning and exploration: A social cognitive perspective. *Journal of Vocational Behavior*, 73(1), 132-142.
- Saka, n., Gati, i., & Kelly, k. R. (2008) Emotional and personality-related aspects of career decision-making difficulties. *Journal of Career Assessment*, 16, 403-424.
- Seibert, S., Kraimer, M., & Liden, R. (2001). A social capital theory of career success. *Academy of Management Journal*, 44, 219-239.
- Shin, Y. J., & Kelly, K. R. (2015). Resilience and decision-making strategies as predictors of career decision difficulties. *The Career Development Quarterly*, 63(4), 291-305.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1982). The career exploration survey: A summary of its dimensionality, reliability, and validity. *Psychological Reports*, 51(1), 117-118.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the career exploration survey (CES). *Journal of Vocational Behavior*, 22(2), 191-226.
- Super, D. E. (1953). A theory of vocational development. *American Psychologist*, 22, 191-226.

- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.
- Torrance, E. P. (1972). Predictive validity of the Torrance tests of creative thinking. *The Journal of creative behavior*, 6(4), 236-262.
- Vygotsky, L. S. (1967/2004). Imagination and creativity in childhood. (M. E. Sharpe, Inc., Trans.). *Journal of Russian and East European Psychology*, 42, 7–97.
- Xu, H., Hou, Z.-J., & Tracey, T. J. (2014). Relation of environmental and self-career exploration with career decision-making difficulties in Chinese students. *Journal of Career Assessment*, 22, 654–665. doi:10.1177/ 1069072713515628
- Xu, H., & Tracey, T. J. (2017). Development of an abbreviated Career Indecision Profile-65 using item response theory: The CIP-Short. *Journal of counseling psychology*, 64(2), 222.
- Xu, H., & Bhang, C. H. (2019). The structure and measurement of career indecision: A critical review. *The Career Development Quarterly*, 67(1), 2-20.
- Young, R. A., Friesen, J. D., & Borycki, B. (1994). Narrative structure and parental influence in career development. *Journal of Adolescence*, 17(2), 173-191.