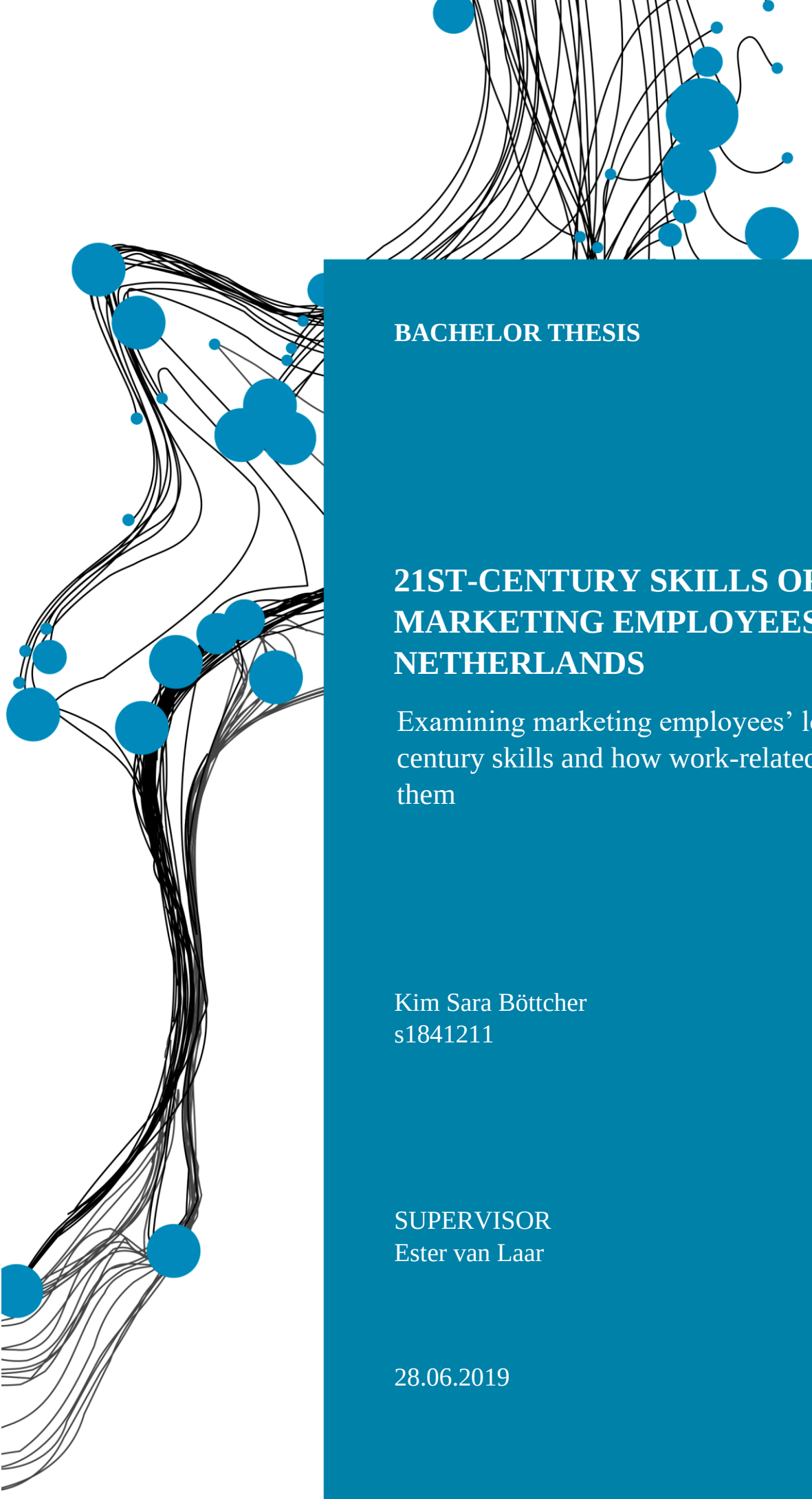

BACHELOR THESIS

21ST-CENTURY SKILLS OF MARKETING EMPLOYEES IN THE NETHERLANDS

Examining marketing employees' level of 21st-century skills and how work-related factors influence them

Kim Sara Böttcher
s1841211

SUPERVISOR
Ester van Laar

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Abstract

While not new, 21st-century skills have gained new importance in the last few years. 21st-century skills are considered to not only determine the success of individuals but also the success of companies and their competitiveness. In the field of marketing, literature has found that a good level of 21-st century skills positively contributes to the effectiveness of marketing managers strategies. The objective of this research is to explore marketing employees' level of 21st-century skills and identify factors influencing this level of skill. Further, this research should increase companies awareness regarding the topic as well as offer possible approaches on how organizations can increase their employees 21st-century skills. A cross-sectional survey has been used to collect data for this research. The survey has been sent out to marketing employees working in the Netherlands. The final data from the survey, which consisted of 150 respondents, was analyzed using linear regression analysis. The results of the study show that work experience and voluntary training have a negative influence on employee's information management skills. On the contrary, emotional safety shows a positive influence on employee's creativity skills. Concluding, in order for companies to enhance their employees 21st-century skills, they should ensure to create a work environment for employees where they feel safe, physically and emotionally. This will foster employee's creativity skills and enhance the success of the project. As work experience negatively influences information management, companies should pay close attention to older individuals and offer help or guidance where needed. Companies can use the results to take acute or preventative measures to help their employees maintain a certain level of skill.

Keywords: 21st-century skills, work, marketing, influencing factors

Contents

1. Introduction

Today's society is changing and emerging at a rapid speed, having major implications for many areas of life, including work, social life, and education. Especially the rise of information and communication technologies (ICTs) has changed the skills that are needed in today's world (Dede, 2009; Higgins, 2014), granting people access to a large amount of information in a short amount of time and making. ICTs make it possible to communicate with people from all over the world in real time.

It has further become crucial for companies and business professionals to think beyond their national traditions and become aware of international developments as a national mindset will no longer be sufficient for a company's success (Geisinger, 2016). The aforementioned interconnectedness of the world has further driven competition between organizations to increase, which makes it more pivotal than ever to stand out, not only as a company but also as individuals (Bancino & Zevalkink, 2007, DeLong & Elbeck, 2017).

21st-century skills are gaining importance as possessing 21st-century skills is increasingly determining the success of individuals and organizations in today's world (Greiff & Kyllonen, 2016; Rotherham & Willingham, 2010). Durable job success has been found to depend to 75% on peoples soft skills rather than on technical knowledge, which has been found to only contribute to 25% to long term job success (Klaus, 2010, as cited in Robles 2012). While 21st-century skills and soft skills are not exactly the same, they share many components and definitions wherefore making it suitable to explore the issue using literature from both fields.

The new importance of 21st-century skills at the workplace is influencing various fields of work, including the field of marketing. Griffith and Hoppner (2013) conducted research to explore which impact soft skills have on global marketing strategies of marketing managers. Herein, the researchers argued that soft skills are a necessity for marketing

managers in order for them to make crucial adaptions to the strategy, hence, increasing the strategies effectiveness.

Various scientific research is concerned with the identification and impact of 21st-century skills. In a literature review conducted by Van Laar, Van Deursen, Van Dijk and De Haan (2017) the skills needed in today's highly technological world have been explored. However, they argue that the skills needed in today's world go beyond mere technical and operational skills. Seven core skills have been identified in the research of Van Laar et. al., (2017): technical, information management, communication, collaboration, creativity, critical thinking, and problem-solving. A selection of the previously identified skills will serve as the basis for this research.

Focussing on all skills mentioned by van Van Laar et. al., (2017) would be too extensive for the purpose of this research, which is why in this research, the focus is set on four skills: information management, critical thinking, collaboration, and creativity. Communication and problem solving are excluded from the list. As the field of marketing is often also concerned with communication-related matters and theories, this study assumes that employees in this field need to possess this skill on a good level to be able to execute their jobs in the first place. Further, problem-solving and critical thinking are often overlapping in their definitions. Critical thinking seems to be more often explored in a workplace related-context, wherefore the focus in this study is set on critical thinking. Generally, the four skills were chosen based on their importance in society and at the workplace, substantiating them as pivotal skills for individuals to possess in order to thrive in today's world. To start with, Aharony and Bronstein (2014) argue that information management is a pivotal skill for being able to sustain in today's knowledge society and be able to compete with others. Critical thinking is important to the field due to its association with achievement (Voogt & Roblin, 2012). That link to achievement makes it a crucial skill

to be considered in the workplace environment, as companies without noticeable achievements cannot operate on a competitive level. Collaboration has been identified as an essential skill for marketing related jobs (Chowdhury & Miah, 2019) which is making it interesting for this research. Finally, creativity has been found to help employees react to a fast-changing environment (Sigala & Chalkiti, 2015) e.g. fields closely connected to the development of technology and society such as marketing.

This research will further explore the previously mentioned skills in relation to work and workplace-related factors, to determine whether there are factors which influence the level of skill individuals possess. Despite gender and age, only a few studies have addressed this topic. Taken into account are hereby the work experience of the individual, the possibility to receive training, organizational climate, autonomy and the companies physical environment.

By being aware of the influencing factors of 21st-century skills, managers can pinpoint which steps to take in order to enhance their employees 21st-century skills to be able to stay competitive. Knowing about the influencing factors could, therefore, be used to facilitate prevention measurements in the organizational context.

In order to provide more information on the factors influencing the level of 21st-century skills of marketing employees, two research questions have been formulated.

1. Which level of 21st-century skills in information management, critical thinking, collaboration, and creativity do people in marketing related jobs possess, ranging from low to high?

2. Which workplace-related factors are influencing the level of skills employees in a marketing related job possess?

This research aims at, by the means of a questionnaire, provide an insight into the level of skills employees working in a marketing related field possess. Further, the research aims at exploring which factors are influencing this level of skill. The research objective hereby is to be able to pinpoint which company related factors need to be adjusted to increase employees level of skill. The results can further be used as a guideline for employers to prevent or tackle low-level skills of employees.

While looking for literature on the topic of 21st-century skills at the workplace it became apparent that literature on this topic is hard to find. While many studies discuss 21st-century skills, not all skills are represented in this research equally or the research is focusing on specific fields. Especially the implementation of 21st-century skills into school curricula is often thematized. Even when job-related contexts are addressed, these often focus on nursing or engineering. Focusing on the marketing context, therefore, is a rather novel domain in this field of research. In addition to that, the literature discussing influencing factors of 21st-century skills often deal with ICT and digital related skills, even though this is only a part of the 21st-century skills which are considered to be important. However, it is crucial to know which factors are responsible for the varying degree of skills employees in the 21st century possess, in order to take specific measures. With focusing on the marketing sector in the Netherlands and their influencing factors, this research aims to add to the gap in the existing literature.

2. Theoretical Framework

While some authors argue that 21st-century skills are relatively new (Geisinger, 2016) others argue that they are, in fact, old skills which have been gaining new importance (Greiff & Kyllonen, 2016; Rotherham & Willingham, 2010; Silva, 2008). The worlds economy has become knowledge-based (Pereira, 2013), putting knowledge of the individual and the creation of it central in today's world (Rezny, White & Maresova, 2019).

A study by Laughton and Montanheiro (1996), has shown that on a daily basis, soft skills are used most often in organizations (as cited in Pereira, 2013). Wilhelm (2004) argues that soft skills are especially important for being successful at the workplace for entry-level employees. Yet, the decision is often made to increase and give training regarding hard skills rather than soft skills (Grifith & Hoppner, 2013).

For this research, it is important to understand the nature of the skills and the factors influencing them. Therefore, various literature has been reviewed regarding the four skills of information management, critical thinking, collaboration, and creativity. Further, literature is used to define the influencing factors of work experience, training, organizational climate, autonomy, and physical environment and elaborate on how they are expected to influence the four 21st-century skills.

2.1. 21st-century skills

2.1.1. Information management.

Information management is an important skill to consider when looking at the 21st-century workplace, as it has been described to become more and more important with the expansion of information technologies (Bruce, 1999). Literature suggests, that information management plays a different role at the workplace than in an educational setting, however, not much is

known about those differences yet (Monge & Frisicaro-Pawlowski, 2013). Monge and Frisicaro-Pawlowski (2013) further argue, that what is known about information management at the workplace suggest that it influences, among other things, the social structure as well as workplace rhythms. In the field of marketing, information management is an important concept, as employees need to be able to keep an overview of all information needed for a project and further stay up to date with recent development. Broader definitions of information management also include concepts such as content management (Detlor, 2010), which is crucial in marketing. So information management is crucial in today's information technology age, however, little is known about the concept at the workplace.

In literature, information management is described as the ability to identify and evaluate appropriate information and make use of the information effectively (Bruce, 1999). The emphasis hereby is on making informed choices rather than finding and using literature by chance (Van Laar et. al., 2017). Additionally, Lloyd (2005) describes information management at the workplace as a way to learn from others by exchanging information. In addition to that, Bird, Crumpton, Ozan, and Williams (2012) describe information literate people as achieving information seeking tasks in a more effective way. In literature, information management has been defined as making informed choices, the possibility to learn from others and being more effective in searching for information.

In general, the components of information management which can be found in the literature show high similarity. Three common components of information management can be identified. The first component is the definition of search terms (Kirton & Barham, 2005; Van Laar et. al., 2017). The definition of search terms can be understood as the correct use of terms, the strategy of the search action and use of search methods. The second component which can be identified is the accessing of information from different sources (P21, n.d.; Van Laar et. al., 2017). This component is characterized by being able to find the information one

was looking for as well as accessing multiple sources. The last component of information management is the storing of information in an effective manner (Bruce, 1999; P21, n.d.). Part of this concept is the ability to save files, including saving them in the right folder. These concepts of information management are crucial to make use of information effectively and lay the foundation for information sharing with others (Kirton & Barham, 2005). To conclude, the main concepts of information management are the definition of search terms, accessing information and the storing of information, which are all conceptualized by different items.

2.1.2 Critical thinking.

Critical thinking is an important skill to possess in today's workforce as it does not only contribute to individuals ability to actively participate in discussion but also to enhance their informed decision-making process (Boyaci & Atalay, 2016; Van Laar, Van Deursen, Van Dijk & De Haan, 2018). In other words, employees who have high critical thinking skills do better in making critical decisions in the process of a project, determining its success. This is especially useful in the field of marketing, which is quickly changing and approaches have to be based on the target group at hand. It has further been noted, that critical thinking skills are central to developing new knowledge (Li, 2016). The notion of developing new knowledge generally aligns with the argument of Pereira (2013) that soft skills serve as the foundation for other skills and are contributing to the formation of meta-competences. Further, it has shown that critical thinking is mentioned in most frameworks regarding 21st-century skills or soft skills as a literature review by Van Laar et. al., (2017) found. Gregorio, Maggioni, Mauri and Mazzucchelli (2019) specifically mention critical thinking as an important skill to possess for marketing employees. To conclude, employees with critical thinking skills are better in making decisions, contributing to the success of the project as well as developing

new knowledge faster.

In literature, critical thinking is described in multiple ways and therefore often considered to be an ambiguous concept (Johanns, Dinkens, & Moore, 2017; Niu, Behar-Horenstein, & Garvan, 2013). Historically, critical thinking is considered to make use of higher order thinking skills (Johanns, Dinkens, & Moore, 2017). Critical thinking is described as the capability and willingness to critically analyze situations in order for employees to make informed choices (Van Laar et. al., 2017; Biswas & Haufler, 2018). To add to that, others extend the definition of critical thinking to being able to think in a clear and rational manner, independently from the opinion of others (Higgins, 2014). Finally, critical thinking is considered as an attitude, reflection, logical and developmental process (Niu, Behar-Horenstein, & Garvan, 2013). Generally, literature describes critical thinking as a not completely defined concept as well as peoples ability to not only critically think about argumentations and approaches but also as an independent way of thinking.

Critical thinking inherits many different components, however, in literature four components seem to be most accepted. These four identified components are reasoning, decision making, reflection, and interpretation. Firstly, various sources describe that reasoning is central for critical thinking (Niu, Behar-Horenstein, & Garvan, 2013; P21, n.d.; Van Laar et. al., 2017). Reasoning in this context is the ability of a person to explain themselves to others based on examples and previously assessed argumentation. The second component involves the judgment and decision making regarding information and application of knowledge and assumptions (Facione, 2000; Niu, Behar-Horenstein, & Garvan, 2013; P21, n.d.; Van Laar et. al., 2017). At the workplace, this could also concern making judgments about the suitability of approaches and sources (Van Laar et. al., 2018). Third, mentioned most often as a component of critical thinking is reflection, often highlighting the importance of self-reflection; the ability to challenge the own thinking and reflecting on the quality of

one's thinking; and to reflect on the quality of obtained information in a critical way (Higgins, 2014; Li, 2016; Niu, Behar-Horenstein, & Garvan, 2013; P21, n.d.; Van Laar et. al., 2018). In other words, people are capable of critically reflecting from discussing or being able to generate new input from a previous discussion. Finally, the Partnership for 21st-century skills mentions the interpretation of information and coming to a suitable or good conclusion is an important component of critical thinking skills (n.d.). This component involves questioning others arguments and opinions in order to understand their point of view. To sum up, the four components of critical thinking are reasoning, decision making, reflection and interpretation, which are all conceptualized by using multiple lines of argumentation to get to a conclusion, considering multiple viewpoints of discussion.

2.1.3 Collaboration.

By making use of collaboration skills, organizations are able to increase their competitiveness, as collaboration fosters a broad range of diverse ideas, opinions, and approaches based on the different experiences, backgrounds, and personalities individuals bring with them (Biswas & Haufler, 2018; Laux, Luse, & Mennecke, 2016;). Collaboration has been important for multiple centuries (Dede, 2009), gaining even more value now that hierarchical structures are flattening and horizontal collaboration is increasingly encouraged (Jerald, 2009). Further, collaboration is able to establish valuable professional relationships with various stakeholders such as Universities, customers and even competitors, giving organizations the possibility to expand their network and collect valuable information from other parties (Haus-Reve, Dahl Fitjar, & Rodriguez-Pose, 2019). Higgins (2014) mentioned that companies are increasingly looking for young people who are capable to work together, rather than be focused on their own work at all times. Another study adds to that, be arguing that jobs are becoming increasingly diverse, making it crucial for multiple people to

collaborate in order to finish the job efficiently (Laux, Luse, & Mennecke, 2016). Collaboration is crucial in the job of marketing, as marketing employees often have to work with other departments or companies to get all insights on a project. Generally, literature describes the need of collaboration at today's workplace as necessary to enhance a companies competitiveness, as the diversity of jobs requires collaboration not only vertically but also horizontally, between different employees as they all inherit different knowledge.

Collaboration is described as being able to exchange information with others, come to agreements, make decisions when working with others who have a similar goal (Van Laar et. al., 2017). In addition to that, it enables people from all over the world to connect (Jerald, 2009). It is further described that collaboration adds to employees ability to negotiate and manage conflicts in a professional way (Casner-Lotto & Barrington, 2006). Collaboration can either happen virtually, involving technology and messenger systems, or personally, with people working in the physical same location (Jerald, 2009). Concluding, collaboration is considered to connect people from all over the world to exchange information and help them to overcome obstacles in a professional way.

The components of collaboration mostly concern the effective work with others, in other words, using collaboration to share work and finish work in an appropriate amount of time. The Partnership for 21st-century skills describes that flexibility is central in order to successfully collaborate with others and accomplish a shared goal (n.d.). To illustrate, this would mean that individuals need to be able to react to the suggestions of others with an open mind and need to be willing to make compromises and therefore partially refrain from their own believes and suggestions for the good of the group. Further, Kahn, Wohn, and Ellison (2014) mention, that learning from one another and being open to others suggestions is crucial in order for individuals to work collaboratively. Moreover, being interactive in collaborative teams is crucial and sharing one's own ideas is necessary for the group to make

effective progress with the task (Van Laar et. al., 2018). Interaction can also include active participation in knowledge exchange. Finally, it is important for collaboration that the individuals who collaborate that they are good in planning ahead in order for the process to run smoothly and to be able to rely on the others in the collaborative exchange (Van Laar et. al., 2018). Conceptualizations of the component could be finishing a deadline ahead of time or making use of planning tools as a help to stick to required timeframes. Summing up, collaboration has four underlying components, namely flexibility, learning, interaction, and time management, which all contribute to a persons collaboration skill.

2.1.4. Creativity.

Creativity is important at today's workplace as it helps organizations to quickly respond to a fast-changing environment (Sigala & Chalkiti, 2014) as well as providing individuals with new ideas in order to reach their goal (Roskes, De Dreu & Nijstad, 2012). Further, Shalley and Gillson (2004) argue that creativity is crucial for employees as it helps them stay competitive in the fast-changing work environment by taking an active approach in the company and developing new and appropriate ideas and approaches. Creativity is often considered to be connected to hard work, effort, and tenacity (Jerald, 2009), making it a crucial skill at today's workplace. Further, creativity is mentioned in various frameworks regarding 21st century skills as a literature review by Van Laar et. al., (2017) found. Another research by Van Laar, Van Deursen, Van Dijk and De Haan (2019) conducted interviews with managers from the creative industry, including marketing, who identified creativity as one of the most important skills to possess. They especially mention the conceptualization and realization of ideas as a central point of creativity. Creativity, therefore, is considered to be important at today's workplace as it contributes to employees ability to adapt to changing environments, reaching their goals, stay competitive, develop novel ideas and approaches and

work hard.

Creativity is generally described as the generation of something novel or new, which is desirable to others and appropriate for the situation the idea is generated in (Gulliksen, 2018; Henessy & Amabile, 2010; Kaufman & Sternberg, 2007; Kingsley & Grabner-Hagen, 2015; Runco & Jaeger, 2012; Van Laar et. al., 2017; Woodman, Sawyer & Griffin, 1993). Van Laar et. al., (2017) even go further and mention that creativity is not necessarily limited to the production of novel ideas but that the concept of creativity can also be extended to familiar ideas which are treated in a new way. In the view of Geisinger (2016), creativity is another form of problem-solving, as it enables individuals to come up with new ideas in order to reach a goal. In literature, creativity is described as the development of new approaches and ideas or are able to treat known ideas in a new way.

Creativity inherits many different components such as content creation or the creation of new ideas (P21, n.d.; Van Laar et. al., 2018), the capability to elaborate on those ideas, to analyze them and to evaluate the ideas (P21, n.d.). The first component of creativity, idea creation, is characterized by originality of ideas and being able to consider various arguments at the same time. Secondly, elaboration encompasses the ability to explain one's own ideas in an easy way to others. Thirdly, analysis is defined by considering the novelty of an idea. Finally, evaluation includes considering the usability of an idea and considering its effectiveness after the idea has been implemented. The notion of novelty, appropriateness, and relevance are central to the success of a creative idea and therefore central to all components (Kaufman & Sternberg, 2007). To conclude, all four components of idea creation, elaboration, analysis, and evaluation involve the novelty and value of the creative idea.

2.2. Influencing factors

For this study, no overarching theory is used which supports connections between all skills and influencing factors. There is still supporting literature used to formulate the hypotheses, however, in some cases, the hypotheses are derived from the literature in an abstract manner. For this reason, the hypotheses are of explorative nature. The factors chosen for this study relate to the organizational environment and organization, personal motivations and attributes relating to the four 21st century skills of information management, critical thinking, collaboration, and creativity. As the 21st century are all closely related to another, this study assumes that if literature suggests that a factor influences one of the 21st-century skills, it is likely to also influence others. Therefore, all hypothesis are formulated in a way which assumes this correlation.

2.2.1. Work experience.

Work experience refers to an individual's relevant work experience, which can be the number of years actively working in the field or numbers of employers. A study by Sokoloff (2012) argues that employees in entry-level positions often are not required to carry out their own information search and, in some cases, even are discouraged from doing so. It is further argued that in order to use information, entry-level employees are required to collaborate with more experienced colleagues. This suggests, that with increasing work experience employees information management skills are increasing. In addition to that, Shalley and Gillson (2004) state that experience and familiarity with a subject are central to the occurrence of creativity at the workplace. Further, since entry-level employees are required to collaborate with others more in order to understand work practices and routines their collaboration skills would increase with more work experience. Wechsler et. al. (2018) define critical thinking as achieving goals in an efficient manner. The more experience someone has in a certain field

the better they get at something, which indicates that more work experience leads to higher critical thinking skills.

H1: Work experience positively influencing marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity

2.2.2. Trainings.

Training, in this case, addresses work-related training that employees can either participate in, in their free time or training which are organized and supported by the company employees are working for. It has been stated by Shalley and Gillson (2004) that well-trained employees are more likely to come up with creative ideas. They link this increase of creativity to the gained experience and different possible viewpoints obtained through the training. Lanning and Mallek (2017) introduce their paper by referencing to Universities teaching information management courses to their student. In literature, many such examples can be found, where research addresses the topic of teaching information management. Therefore, it can be assumed that courses on the skill can help enhance individuals level of skill. Something similar is described for critical thinking, where Janssen et. al. (2019) argue that critical thinking has to be actively thought rather than implied to affect peoples level of skill. Gilbert, Tozer, and Westoby (2017) have found that collaboration skills can be enhanced by simply raising awareness about the skill in short courses.

H2: Training possibilities offered by the organization positively influence marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

H3: Training possibilities which are taken voluntarily by employees outside of work positively influence marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

2.2.3. Organisational climate.

Raja (2018) states that the organizational climate of an organization is influencing employees work determination. According to them, people will work more dedicated in an environment they feel comfortable in. This is supported by Richardson and Mishra (2018) who argue that companies need to establish cooperation between employees in which they feel like they take risks and address sensible topics. This is further supported by Hennessey and Amabile (2009) who argue that employees will develop more creative solutions when they feel a sense of psychological safety. In other words, employees will express more unusual and creative ideas when they feel like they are not being judged for them. In addition to that, Woodman, Sawyer, and Griffin (1993) suggest that social influence can improve employee's creativity and that interaction with other individuals is influencing their creativity. Loh, Idris, Dormann and Muhammad (2019) argue that organizational climate can be defined as a group constructs, where individuals together derive meaning from the perceived situation. This links organizational climate to collaborative team processes, making it likely that collaboration is influenced by the companies organizational climate. Regarding information management, Bird, Crumpton, Ozan, and Williams (2012). State that employees are likely to turn to their colleagues when in need of information. In order to do so, a good organizational climate is needed, so employees feel emotionally safe to ask questions to others. Part of critical thinking is deriving conclusions from input. Getting in touch with colleagues on an informal basis makes it easier to take different viewpoints into consideration and generates more input for a response.

H4: A good organizational climate where employees feel safe to make mistakes and express concerns positively influences marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

H5: Having social activities at the workplace positively influences marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

2.3.4. Autonomy.

Henessey and Amabile (2009) describe a connection between employees' autonomy and their level of creativity. They argue that increased control over one's own work will foster intrinsic motivation and therefore enhance creativity. Additionally, Shalley and Gillson (2004) mention that jobs that are high on autonomy cause individuals to be more persistent and come to more creative solutions. Both-Nwabuwe, Lips-Wiersma, Dijkstra, and Beersma (2019) define autonomy as the degree of freedom and control over a work situation, which can relate to scheduling tasks, the time spent on a task and how quick a task is achieved. They argue that this definition holds for both individual task-based autonomy and group-based autonomy, suggesting that group collaboration processes are influenced by the groups level of autonomy. Dijkstra and Hensler (2015, as mentioned in Sun, Jiang, Hwang & Shin, 2018) link increased information management to motivational factors such as autonomy. As mentioned earlier, a high amount of autonomy at the workplace is increasing individuals motivation at the workplace and can enhance their information management capabilities. The definition of critical thinking which is posed by Eales-Reynolds, Gillham, Grech, Clarke, and Cornell (2012) suggest a connection of critical thinking to autonomy. They suggest that

critical thinking requires individuals to make their own important, informed decision and form their own opinions. Making own critical decisions and forming own opinion is only possible if the employee has a certain degree of freedom at the workplace.

H6: A high level of autonomy, perceived control and freedom over one's own work, positively influences marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

2.2.5. Physical environment.

Woodman, Sawyer, and Griffin (1993) point out that the physical environment which employees work in can influence their level of creativity. As such a factor they mention company size and group size. Saparova, Kibaru & Basic (2013) argue that a shared workspace can foster the exchange with others and increase the success of collaborative teams. Depending on the company, a workspace can be shared by just one or multiple departments, therefore relating to both company and office size. Barmeyer, Mayrhofer, and Würfl (2019), suggest that contact between employees is needed to facilitate not only the exchange of information but also information management, as much information can be gained from these contacts which an individual did not have prior to the contact with other employees. In big companies or offices, the possibility to access knowledge from colleagues is bigger, making it more likely for employees to receive valuable and needed information. With many employees in one company or office, the diversity of opinions, viewpoints and approaches increases. This raises the necessity for employees to be critical to the obtained information, ask questions and critically assess the information at hand. These activities are often related to critical thinking (Fung, 2017), linking critical thinking to the size of the group they are in. Employees who have poor critical thinking skills might not be able to

differentiate between the value of obtained information and therefore proceed with their tasks less efficiently.

H7: Sharing an office with multiple people, positively influences marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

H8: Working in a big company positively influences marketing employees 21st-century skills of information management, critical thinking, collaboration, and creativity.

Figure 1. Workplace and motivational related factors influencing marketing employees 21-st century skills of information management, critical thinking, collaboration, and creativity.

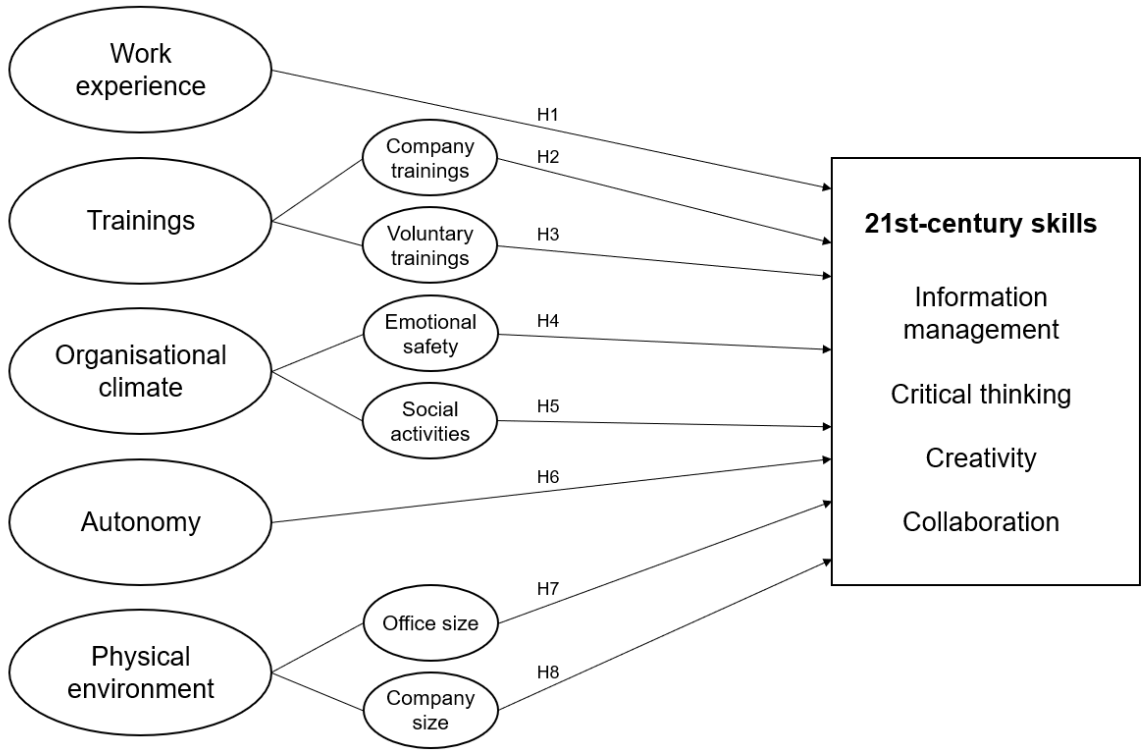


Figure 1. A conceptual model of the work experience, training, organizational climate, autonomy and physical environment influencing marketing employees 21st-century skills of information management, critical thinking, creativity, and collaboration.

3. Methodology

For this study, a cross-sectional survey was conducted among employees working in a marketing related job. This method was considered the most suitable, as it offers the possibility to approach a large number of respondents, independently from location or time (Van Selm & Jankowski, 2006). This means, that the researcher did not have to be present when the survey was filled in and was able to distribute the survey to employees working in a marketing related job across the whole Netherlands. It further offered the respondents the possibility to complete the survey at a for them convenient time (Zwarun & Hall, 2014). In addition to that, surveys usually take less time to complete for the respondents than a different method, increasing the likelihood of responses of the approached population (Wharton, Hampl, Hall & Winham, 2003). Hence, a survey is a good method in order to collect a large amount of data in a short amount of time. The survey method allows respondents to stay more anonymous than with other methods, which makes it more likely for them to answer questions honestly avoiding a bias of social desirability (Schears, 2012; Zhang, Kuchinke, Woud, Velten & Margraf, 2017).

Despite all the positive aspects of collecting data by the means of a survey, the method itself holds certain limitations. A list of those limitations which tend to threaten a surveys reliability and validity was compiled by Podsakoff, MacKenzie, Lee and Podsakoff (2003). Several actions were taken to account for factors influencing the survey results, thus increasing the validity and reliability of the survey. The limitations listed by Podsakoff et. al., (2003) included, amongst others, item complexity or ambiguity, negatively worded items, and scale length. The limitation of item complexity was accounted for by conducting a small pre-test, which identified items unclear to the respondents which are further discussed in section 3.4. Negatively worded items are known to cause bias in the result, as they inherit the possibility that respondents may not interpret them as intended or bias the respondent's

answer. For that reason, the researcher made a conscious choice prior to formulating items to exclude negatively phrased items. The scale length was accounted for by separating not only different parts of the survey from each other but also keep the different skill scales on separate pages. This made it less likely for respondents to answer in a way, which would connect the different scales with each other. Additionally, other authors defined limitations such as data security (Van Selm & Jankowski, 2006) and the perceived feeling of spamming (Wharton, Hampl, Hall & Winham, 2003) as influences of the respondent's answers. Data security provides only a small threat for this study, as respondents did not have to give personal information which could directly identify them, such as name, company name or email address. Only the IP address of respondents was stored. Lastly, to minimize that respondents perceived the email which was used to approach the research population as spam, several measures were taken. If possible respondents were addressed by their name and it was stated how the researcher received their email address as well as including the researcher's name, university, educational degree, email address and that the research was part of a Bachelor thesis.

3.1. Data collection

In order to approach a representative sample, companies located in all areas of the Netherlands were approached. In order to fit into the target sample, the respondents were required to have an active contract in a marketing related position and be older than 18 years. Further, no inclusion or exclusion criteria were identified. In order to contact possible respondents, multiple approaches were applied. To start with, personal connections were contacted and asked to participate in the survey, some were contacted personally, others were approached over social media sites such as Facebook and LinkedIn. Then, search engines were used to identify companies which operate in the field of Marketing. Hereby, it was

specifically searched for companies in specific cities, to gain an overview of the geographic location of a company, enabling the researcher to systematically contact companies from all over the Netherlands. This approach was chosen to decrease possible sampling biases. Over the email addresses mentioned on the corporate website, companies and individuals were approached. From then on, snowballing methods were applied and the respondents were asked to distribute the survey to other acquaintances working in a marketing related job. The email used to approach respondents can be found in Appendix B. During the process, small adjustments have been made to that email.

3.2. Sample

The sample population for this research consisted of marketing employees working in the Netherlands. All sample characteristics can be found in Table 1. In total, 1025 people were approached directly to participate in the survey, resulting in a total response rate of 20%, including 60 incomplete responses. Excluding the incomplete responses, the actual response rate was 14%. This response rate, however, does not account for those that filled the survey in after seeing it on the timeline of the social media sites mentioned in the previous section.

In total, 150 people participated in the survey, of that 60 male and 90 female. The majority of the respondents were between 20 and 30 years old (*n*=83) and between 31 and 40 years old (*n*=39). The respondents were mainly of Dutch nationality (*n*=125) or German nationality (*n*=10) with a high level of education (*n*=126). Further, 41% of the respondents worked for a traditional marketing agency (*n*=62) and 59% worked in a Marketing department (*n*=88).

Table 1. Characteristics of survey respondents

Characteristics	*n*	%
Gender		
Male	60	40%
Female	90	60%
Age		
Under 20	1	1%
20 to 30	83	55%
31 to 40	39	26%
41 to 50	19	13%
51 to 60	6	4%
Above 60	1	1%
Nationality		
Dutch	125	83%
German	10	7%
Other	15	10%
Education		
Low	13	9%
Middle	11	7%
High	126	84%

(Continued)

Table 1. (Continued)

Characteristics	*n*	%
Workplace		
Marketing Agency	62	41%
Marketing Department	88	59%

3.3. Procedure

Before the data collection was started, a research plan of the current research was submitted to the Ethical Committee of the University of Twente due to the participation of human subjects. This was done to ensure that the research conforms to ethical regulations. The research was approved without any comments by the Ethical Committee.

Before the participants started the survey, they had to read and give their informed consent to participate. They had to agree to the informed consent in an active matter, actively declaring that they had read and understood the nature and scope of the study rather than skipping over the given information. The introduction of the survey started with a brief description of the topic and purpose of the study, as well as mentioning the estimated time it would take to complete the survey and that there would be no right or wrong answer possibilities. It further informed the respondents about the voluntary nature of the research and that their data would be anonymous and treated confidentially. They were informed about their right to withdraw from the study at any time, that only the researcher and supervisor would have access to the data. Finally, the respondents received the contact information of the researcher to ask questions or express concerns. In the end, the respondents actively had

to agree to having received sufficient information about the topic and that they understand their right to withdraw and their voluntary participation. Further, they agreed to understanding that their data would be anonymous and confidential as well as that they had received the email address of the researcher. Lastly, they declared that they were above 18 years old and that they were working in a marketing related job. If they agreed they were forwarded to the start of the questionnaire if they declined they were directly forwarded to the end of the survey.

The survey itself consisted out of three different parts. The first part of the survey concerned demographics questions regarding the participant's own person such as age, gender, and nationality. The second part concerned questions regarding the respondent's workplace such as company size, possibilities for training and amount of social activities at the workplace. Lastly, the third part consisted of scales regarding the 21st-century skills chosen for this research, Information Management, Critical Thinking, Collaboration, and Creativity. After completing the survey the respondents were thanked and once again received the email address of the researcher and were told that they could receive a copy of the results as soon as the research would be officially completed.

3.4. Pre-test

In order to improve the validity of the instrument, a small non-systematic pre-test was conducted. For this, five individuals have been asked to complete the survey and identify items, sentences or structure that they considered as being unclear or ambiguous. As a result, multiple questions were adjusted or erased. One item that four of the five participants identified as ambiguous was the “How often do you provide others with thought through reasoning or argumentations?”. The participant considered the phrasing unclear and repeatedly asked for clarification of the meaning. Therefore, the item was rephrased as “How

often do you thoroughly think about your reasoning or argumentation before talking to others?". Additionally, participants considered the question "How much autonomy do you feel you have when working on your tasks?" as being unclear and felt like the concept of autonomy was not explained well. For that reason, the question was rephrased as "Do you feel like you have a lot of freedom over how to execute your tasks". Another remark given was that the questions regarding official employment status and work hours were too closely related, wherefore the first one was eliminated from the final survey. Generally, all comments made by participants regarded the clearness or phrasing of questions or items and were adjusted after the pre-test.

3.5. Measures

The design of most questions in the first and second part of the survey included open questions, closed questions with various answer possibilities for the respondents and dichotomous questions (Yes/No). The third part of the survey assessed the level of respondents skills using a 5 point Likert scale (1=never, 2=rarely, 3=sometimes, 4=often, 5=always). The entire survey as it was sent out to respondents can be seen in Appendix C.

3.5.1 Dependent variables.

The dependent variables in this research were the four chosen 21st-century skills of information management, critical thinking, creativity, and collaboration. Each was measured using a separate Likert-scale, including various items. In order to assess the reliability and validity of these scales, a reliability and factor analysis was conducted which are further discussed in section 3.6 and 3.7. Due to the result of that analysis, various items were deleted from the scales, in order to increase the reliability and validity of the scales. An overview of

all items which were included in the actual analysis, the items characteristics and sources can be found in Appendix D.

3.5.1.1. Information management.

The Likert-scale of information management consisted out of questions belonging to three concepts: defining, accessing and storing (α = 0.32). In total, four items were used to measure information management. Defining consisted out of one item, with questions such as “How often do you use the Boolean method to limit the number on online search results?”. Accessing consisted of two items such as “How often do you only look at the top results of the search engine?”. Finally, storing included one item such as “How often do you save online sources directly in the right folder?”. This scale was compiled using items from two already existing scales. Two items for information were adapted from Van Deursen, Van Dijk and Peters (2012) and the other two were adapted from Van Laar et. al. (2018).

3.5.1.2. Critical thinking.

Critical thinking was measured using questions relating to three different concepts: reasoning, decision making, and reflection (α = 0.65). The concept of interpretation had to be erased, due to a low Cronbach's alpha. In total, seven items were used to measure critical thinking. Reasoning consisted out of two items such as “How often do you give concrete examples for your reasoning?”. Decision making included two items such as “How often do you consider various arguments to formulate your own point of view?”. Finally, Reflection consisted of three items such as “How often do you generate new input from a discussion”. Five of these items were adapted from an existing scale from Van Laar et. al. (2018). Two items were formulated by the researcher.

3.5.1.3. Collaboration.

Collaboration was measured by three concepts: flexibility, learning, interaction and time management (α = 0.61). In total, eight items were used to measure collaboration. Flexibility included three items such as "How often do you try to solve conflicts with a compromise?". Learning consisted of two items such as "How often do you share resources with others that help them perform their task?". Interaction included two items such as "How often do you actively participate in meetings or knowledge exchanges?". Finally, time management consisted of one item "How often do you use tools which help you to stick to your planning?". In total, three items were derived from an existing scale by Van Laar et. al., (2018). The remaining five items were formulated by the researcher.

3.5.1.4. Creativity.

The items relating to creativity were based on four different concepts: idea creation, analyzing and evaluation (α = 0.61). In total, eight items were used to measure creativity. Idea creation consisted of three items such as "How often do you come up with new ideas for a task?". Analyzing consisted of three items such as "How often do you consider whether your idea could also be used in a different way?". Lastly, evaluation was measured by two items such as "How often do you evaluate the usability of your ideas before presenting them to others?". Three of these items were based on an existing scale by Van Laar et. al. (2018). Five items were formulated by the researcher.

3.5.2. Independent variables.

Several independent variables were used to measure their influence on employees level of 21st-century skills, specifically information management, critical thinking, collaboration, and

creativity. For this research, five influencing factors were identified: autonomy, social influences, physical work environment, organizational climate, training, company size, and work experience.

3.5.2.1. Work experience.

Work experience was measured by two items such as "How many years of work experience do you have?". Both factors were measured with open questions. As this factor is measured by two items, a reliability analysis was conducted. The reliability of this scale is acceptable, with a Cronbach's alpha of 0.69 (M = 6.72, SD = 2.98).

3.5.2.2. Training.

Trainings was measured by two sperate concepts: company trainings (M = 2.78, SD = 1.14) and voluntary trainings (M = 3.07, SD = 1.05). Both were measured by each one closed question with pre-defined answer possibilities such as "How often are training being organized".

3.5.2.3. Organisational climate.

Organisational climate was measured by two sperate concepts: emotional safety and social activities. Emotional safety was measured by two dichotomous questions (α = 0.62, M = 1.11, SD = 0.04) such as "Do you feel like you are allowed to make mistakes at your workplace?". Social activity was measured by one closed question with pre-defined answer possibilities "Does the company organize social activities where it is possible to catch up with or get to know colleagues?" (M = 2.09, SD = 0.82).

3.5.2.4. Autonomy.

Autonomy was measured by two items such as “Do you feel like you have a lot of control over your work?”. Both factors were measured with dichotomous questions. As this factor is measured by two items, a reliability analysis was conducted. The reliability of this scale is acceptable, with a Cronbach’s alpha of 0.60 (*M* = 1.11, *SD* = 0.03).

3.5.2.5. Physical environment.

Physical environment was measured by two sperate concepts: company size and office size. Each was measured by one question: “How many employees are working at the company that you are currently working for?” and “With how many people do you share an office/workspace?”. Company size was measured by a closed question with pre-defined answer categories (*M* = 2.61, *SD* = 1.22) and office size was measured by an open question (*M* = 22.33, *SD* = 59.96).

3.6. Factor analysis

Before conducting the factor analysis, it was tested whether the items of the dependent variables are suitable for such an analysis by running a KMO and Bartlett’s Test. The Kaiser-Meyer-Olkin value was rather good with a score of 0.72 including a significance of the Bartles Test ($p<.001$).

By normally running the factor analysis, 12 underlying factors were identified. This differed largely from the expected outcome wherefore the factor analysis was run a second time, this time suppressing all factor loadings into four factors, consequentially overruling the statistical results. Further, all factor loadings below 0.40 were excluded from the analysis. As

a result of that, not all items loaded on any of the factors and were ultimately excluded from the further analysis. The exclusion of items concerned three items of information management, one item of critical thinking and one item of collaboration. In order to make the interpretation of the factor analysis easier, a varimax rotation was applied. The results of this factor analysis can be found in Appendix E.

Even after suppressing all items into four factors, the items still did not load on the intended factors. Generally, item loadings were very spread out over all factors. Items belonging to one skill often loaded on two or three factors, seldomly on the factor, they were intended to load on, sometimes even loading on multiple factors per item. Only the second factor included the majority of the items belonging to critical thinking and the fourth factor included half of the items belonging to critical thinking, both also including items from other skills. Also, the third factor included some items of collaboration as intended. It is noticeable that the factors from the factor analysis do not seem to reflect the factors identified in the theoretical framework as intended. Most of the factors are mixed up and no underlying fit between items could be identified by the researcher.

3.7. Reliability analysis

As the factor analysis of the dependent variables did not provide the expected outcome, the reliability of the factors was calculated to examine whether the factors can be used in further analysis. An overview of the outcomes of the reliability analysis can be found in Table 2. Generally, information management scored the lowest, below the generally accepted value with $\alpha = 0.32$. Even after removing two items which scored particularly low the score remained below a generally accepted value. Critical thinking, collaboration, and creativity scored higher, in a range between 0.61 and 0.65 which is generally acceptable. In order to

increase the Cronbach's alpha of the scales of critical thinking and creativity, one item was deleted from Critical thinking and two were deleted from creativity.

Table 2.

Descriptives of the scales measuring the dependent variables

Skills scale	*n*	Mean	*SD*	Variance	α
Information management	4	3.32	0.79	0.62	0.32
Critical thinking	7	3.73	0.12	0.01	0.65
Collaboration	8	3.57	0.24	0.06	0.61
Creativity	8	3.43	0.30	0.09	0.61

3.8. Analysis

The collected data was analyzed using the program SPSS. First, the descriptives of all items on the scales of the dependent variables were analysed to identify employees level of skill. Then, a regression analysis was conducted to explore the effect that the independent variables have on the dependent variables. In other words, the effect of work experience, training, organizational climate, autonomy and physical environment on information management, critical thinking, collaboration, and creativity was measured. For each skill and influencing factor, an own regression analysis was conducted, so the independent variables were examined independently from another. For this, the dependent variables had to be transformed into four new variables, each consisting of the mean score of a single skill. The

same was done for independent variables which consisted of multiple questions. In the end, a multiple regression analysis was carried out to examine whether the independent variables also influence one another.

4. Results

The first research question is concerned with the level of information management, critical thinking, collaboration, and creativity skills marketing employees in the Netherlands possess. Table 2 is presenting the mean values of each skill scale. A general overview of the mean skill per item, as mentioned before, can be found in Appendix D. Each of the scales have a mean value between 3.00 and 4.00, suggesting a rather average degree of skills. Information management has the lowest mean score (M = 3.32, SD = 0.79). From the four items of information management, the question "How often do you use the Boolean method to limit the number on online search results?" has the lowest mean value of 2.25 (SD = 1.13) and the item "How often do you find the information you were looking for" has the highest mean value of 4.14 (SD = 0.46). Critical thinking has the highest scale mean score of 3.73 (SD = 0.12). Regarding critical thinking, the item with the lowest mean score of 3.63 (SD = 0.63) is "How often do you generate new input from a discussion?". The highest mean score was 3.94 (SD = 0.62) relating to the item of "How often do you make sure that you have sufficient information about a topic before you take action on it?". Collaboration has a scale mean score of 3.57 (SD = 0.24). For collaboration, the item "How often do you change your own suggestions to benefit the groups collaboration process?" has the lowest mean score of 3.32 (SD = 0.66) and the item with the highest mean score of 3.93 (SD = 0.68) is "How often do you share your ideas with others?". Lastly, creativity has a scale mean score of 3.43 (SD = 0.30). The item with the lowest mean score for creativity is "How often are your ideas considered to be unusual by others?" with a mean score of 2.85 (SD = 0.75). The item with the highest mean score of 3.77 (SD = 0.80) for creativity is "How often do you analyze whether your idea is feasible?". As all skills were measured on a five point Likert scale, this suggests that the higher the mean score the higher the level of skill employees possess.

The second research question is assuming that there are factors which influence the

21st-century skills of information management, critical thinking, collaboration, and creativity. Table 3 and table 4 are showing the results of the regression analysis for every factor influencing the 21st-century skills. Table 3 is showing how good the model fits the data and how much variation of the dependent variable can be explained by the independent variable. Generally, the data suggests that the regression analysis does not predict the dependent variables significantly well. In all cases, the R2 is really low, suggesting that the independent variables explain the dependent variables of less than 10%. Further, the table shows that the only combinations which are statistically significant are work experience and information management, voluntary training and information management and emotional safety on creativity.

Table 3.

General model fit of the independent and dependent variables.

	Information Management			Critical Thinking			Collaboration			Creativity		
	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*
Work experience	.05	8.44	.00	.00	0.58	.45	.00	0.24	.63	.00	0.03	.87
Company trainings	.02	3.00	.09	.00	0.14	.71	.00	0.26	.61	.00	0.15	.70
Voluntary trainings	.06	6.08	.02	.03	2.54	.11	.00	0.13	.73	.02	2.04	.16

(Continued)

Table 3. (Continued)

	Information Management			Critical Thinking			Collaboration			Creativity		
	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*	R^2	*F*	*Sig.*
Emotional safety	.02	3.69	.06	.00	0.06	.82	.00	0.35	.55	.06	9.98	.00
Social activities	.02	2.04	.16	.01	1.08	.30	.00	0.24	.62	.00	0.03	.85
Autonomy	.00	0.37	.54	.00	1.02	.90	.01	0.70	.40	.00	0.62	.43
Office size	.00	0.50	.48	.01	1.11	.29	.01	1.47	.23	.02	3.56	.06
Company size	.01	1.09	.30	.00	0.00	.97	.01	1.47	.23	.00	0.23	.64

In order to provide an answer to the hypotheses which were proposed in section 2.2. table 4 will be taken into account. It can be seen that work experience, company training, voluntary training, social activities and, company size negatively influences employees information management skills. Emotional safety, autonomy and office size on the other hand influence information management positively. From all the independent variables influencing information management, only work experience and voluntary training are statistically significant ($p<.05$). Regarding critical thinking skills, it can be seen that company training, voluntary training, emotional safety, autonomy, office size and company size have a negative influence on marketing employees skills. Only work experience and social activities have a positive influence on critical thinking skills. None of the results are statistically significant.

Collaboration is negatively influenced by work experience, company, and autonomy. Voluntary training, emotional safety, social activities, office size, and company size, on the other hand, have a positive influence on marketing employees collaboration skills. None of these results show a statistical significance. The last skill addressed is creativity, which is negatively influenced by work experience and voluntary training. The other factors, company training, emotional safety, social activities, autonomy, office size, and company size positively influence marketing employees creativity skills. Of these, only emotional safety shows statistical significance ($p<.05$).

Table 4.

Results of the regression analysis, presenting the effect of the independent variables on the dependent variables and their significance.

	Information Management			Critical Thinking			Collaboration			Creativity		
	β	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p.*
Work experience	-.23	-2.91	.00	.06	0.76	.45	-.04	-0.49	.63	-.01	-0.17	.87
Company trainings	-.15	-1.73	.09	-.03	-0.38	.71	-.05	-0.51	.61	.03	0.38	.70
Voluntary trainings	-.25	-2.47	.02	-.17	-1.60	.11	.04	0.35	.73	-.15	-1.43	.16

(Continued)

Table 4. (Continued)

	Information Management			Critical Thinking			Collaboration			Creativity		
	β	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p.*
Emotional safety	.16	1.92	.06	-.02	-0.23	.82	.05	0.50	.55	.25	3.16	.00
Social activities	-.13	-1.43	.16	.09	1.04	.30	.04	0.50	.62	.02	0.19	.85
Autonomy	.05	0.61	.54	-.01	-0.12	.90	-.07	-0.84	.40	.07	0.79	.43
Office size	.06	0.71	.48	-.09	-1.05	.29	.10	1.21	.23	.16	1.89	.06
Company size	-.09	-1.05	.30	-.00	-0.03	.97	.10	1.21	.23	.04	0.48	.64

The first hypothesis (H1) expects to find a positive influence of work experience on information management, critical thinking, collaboration, and creativity. The data shows that work experience has a positive effect on critical thinking, however, this finding is not significant. Work experience has a statistically significant effect on information management, however, this effect is negatively influencing information management wherefore the hypothesis is rejected.

The second hypothesis (H2) expects to find a positive influence of having the possibility to receive training by the company on information management, critical thinking, collaboration, and creativity. Company training show a positive effect on information management and creativity, however, both of the effects are not significant. This Hypothesis is rejected, as no statistically significant effect of this variable on the skills is found. Hypothesis three (H3) can also be rejected. Voluntary training show a positive effect on collaboration, however, this effect is not significant. There is a statistically significant effect

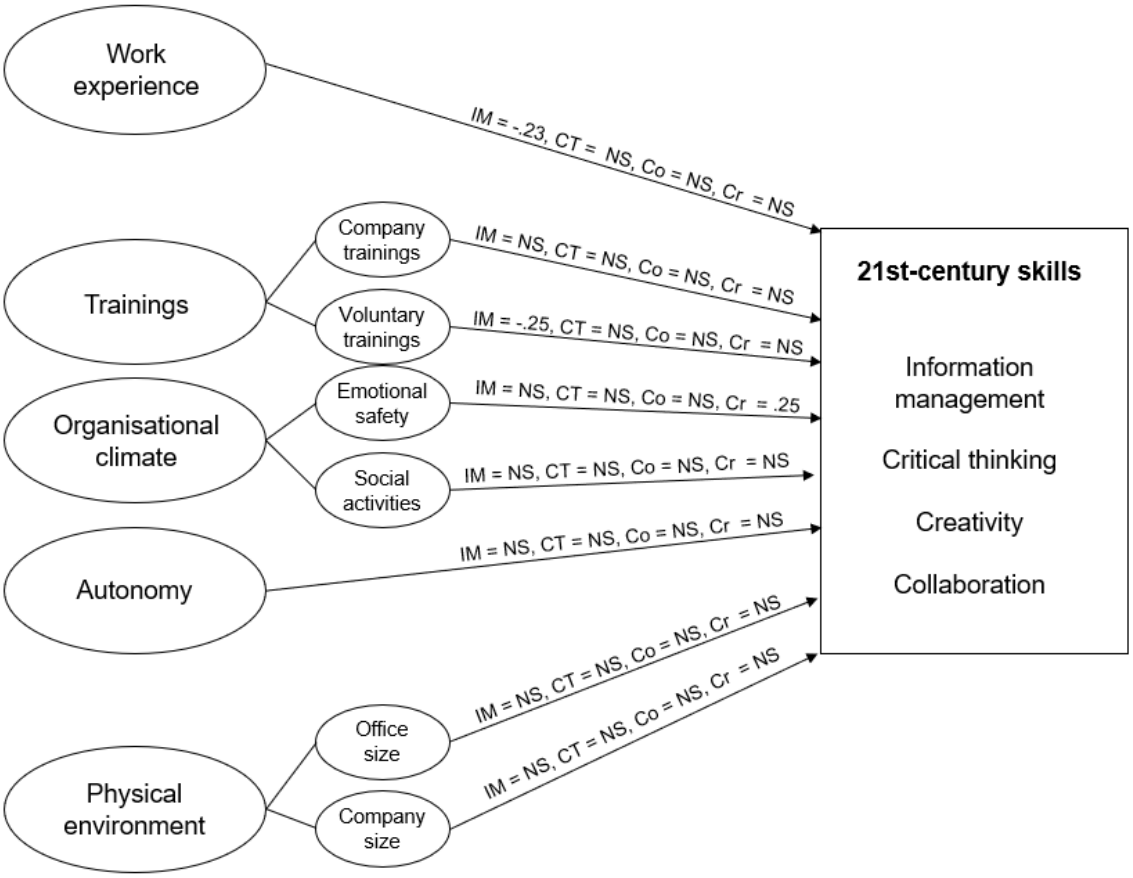
of voluntary training on information management, however, this effect is negative.

The fourth hypothesis (H4) expects a positive influence of employees perceived emotional safety on employees information management, critical thinking, collaboration, and creativity skills. Emotional safety has a positive effect on information management, collaboration, and creativity, however, the effect on information management and collaboration is not significant. This hypothesis can be partially accepted, as there is a statistically significant positive effect of emotional safety on creativity. The fifth hypothesis (H5), expecting a positive effect of social activity at the workplace is rejected. Social activities do show a positive effect on critical thinking, collaboration, and creativity. All of these effects are statistically not significant.

The sixth hypothesis (H6) is rejected. This hypothesis expected to find a positive influence of employees perceived autonomy over their work on information management, critical thinking, collaboration, and creativity. Autonomy shows a positive effect on information management and creativity, however, with no statistical significance.

The seventh hypothesis (H7) is rejected, as no statistically significant effect of office size and level of skill can be detected. Office size shows a positive effect on information management, collaboration, and creativity but these are not statistically significant. Lastly, also the eight hypotheses (H8) is rejected, as the positive effect of company size on collaboration and creativity is not statistically significant. Also, the effects of company size on information management and critical thinking are not statistically significant.

Figure 2. Research model of workplace and motivational related factors influencing marketing employees 21-st century skills of information management, critical thinking, collaboration, and creativity.



5. Discussion

5.1 Main results

The previous section, the results of the study were discussed. This section will further explore these findings and what these results mean for the purpose of the study. At the beginning of this report, two research questions were posed, guiding the intention and execution of this research. Those questions will be answered in the following section. Further, the limitations of the research will be discussed and possible directions for future research will be addressed.

The first research question was “Which level of 21st-century skills in information management, critical thinking, collaboration, and creativity do people in marketing related jobs possess, ranging from low to high?”. In table 2 it can be seen that the general level of employees skills is rather average. The results show that, on average, the respondents consider engaging in activities every once in a while (sometimes). The results show that marketing employees in the Netherlands are most able to execute critical thinking skills and less able to conduct information management skills. It is noticeable that information management has, in total, both the highest and lowest mean score when looking at all skills respectively. Especially, using a Boolean method should increase the suitability of result received from search engines but the results show that marketing employees in the Netherlands do not use this method often. However, they still reported that they often find the information they were looking for. This result seems rather contradicting and raises the question whether these two questions are really related, or rather, whether the scientific way of looking for information is really relevant at the workplace. Further, generally, it seems like the 21st-century skills of the respondents are rather mediocre, suggesting that companies should pay more attention to individuals. Another item which scored rather high concerned the sharing of ideas with others, relating to collaboration. That employees scored rather high on this item suggests that marketing employees in the Netherlands generally experience an

open work climate, where it is okay to express their opinion. This could stem from the rather open hierarchical structures workplaces in the Netherlands possess, directly influencing the collaboration skills of employees. As this research has a high degree of novelty, there are no studies known to the author which conducted a similar study. For that reason, it is hard to draw a conclusion taking other literature into account.

The second research question was "Which workplace-related factors are influencing the level of skills employees in a marketing related job possess?". Table 4 portrays the result of the analysis which was run to identify whether the factors identified prior to the data collection actually have an effect on the skills of information management, critical thinking, collaboration, and creativity. Most factors did not show to have a significant effect on employees skills, however, three factors have an influence. That emotional safety shows to positively influence creativity also aligns with the previous findings, that marketing employees seem to not be afraid to share their ideas with others. Creativity is especially important for marketing employees, wherefore this finding could be of high importance for marketing companies. These findings imply that employees can express and develop more creative ideas when they feel like they are not being judged for it and are allowed to make mistakes. which is also supported by literature. Companies need to embrace open office cultures, where employees are encouraged to think along rather than follow commands and feel like they are in a safe environment. Only then can creativity among employees flourish. Also, the negative influence that work experience has on information management has implications for the workplace. This finding suggests that information management skills decrease with an increase in work experience. As work experience often increases with age it would seem like the older the employees get, the less they are able to efficiently look for information. In order to keep employees level of information management skills high, companies need to pay attention to the individual and offer training possibilities for those that

might not have sufficient skills. Finally, the negative influence of voluntary training on information management is hard to interpret. The results suggest to advice employees against taking additional measures to increase their information management skill. Even though its significance, it is hard to believe that such an effect would be representative of the whole population. A possible explanation for this might be, that if employees have to commit to taking part in training in their free time there is not enough time for them to follow other activities or take a break from work. This might cause information overload and cause the negative effect of voluntary training on information management. Also for this, no to the author known studies have been exploring the effect of these concepts on the four 21st-century skills. However, the finding supports the previously mentioned sources relating to emotional safety. Woodman, Sawyer, and Griffin (1993) link creativity to being active in groups and exchanging information with others. That offers individuals the possibility to get a new point of view and come up with a new idea. This also seems to support the notion of Hennessey and Amabile (2009) that a good relationship to colleagues at the workplace helps them to develop or at least express their creative ideas more. Regarding work experience, the results of this study are not in line with the expectations which were derived from literature. Looking at the argumentation of Sokoloff (2012) that entry-level employees are less likely to be engaged in information management tasks, it seems like the interpretation of that statement used for this study might not be the right one. Just because entry-level employees are not often allowed to execute such tasks does not necessarily mean that they do not have the ability but it rather suggests a lack of confidence of the supervisor's perception of the employee.

This research provides some insights on how marketing employees skills can be enhanced which ultimately affects the quality of their work. Companies can use this knowledge to make sure their employees receive the training they need and make a conscious

effort to ensure the employees feel comfortable at their workplace. One way to do this would be to actively ask for the employees to think along and actively engage at their workplace rather than follow command without thinking. Also, by being aware of the influencing factors makes it easier for companies to provide guidance for their employees from the beginning, rather than waiting until a lack of skills is decreasing the employees efficiency.

5.2. Research limitation and future research

The study faced several possible limitations, mostly regarding the methods used and the research instrument. These limitations will be discussed as well as address possibilities for future research.

One point to take into consideration regarding the research instrument are the frequency questions used to measure the dependent variables. Frequency questions were chosen in order to avoid self-measurement questions, in which participants how to evaluate how good they are at a certain task. Self-evaluation questions largely suffer from validity concerns. Respondents might over or underestimate their own ability and there is no possibility to assess what their actual score might be. Frequency question are, to a certain degree, also subject to respondent's self-evaluation however, they are less subjective and more based on data the respondents can actually assess. However, it cannot be ruled out that respondents give a socially desirable answer.

Another point which might have influenced the answers of the respondents is the 5-point Likert scale. Some respondents might have been chosen the middle option in order to avoid spending too much time on the survey or not wanting to give honest answers. While giving a middle option stating "sometimes" on the liker scale can be useful as it does express a true time-statement. So using a 6-point scale might have given different results.

Further, in the factor analysis the statistical results were overruled, which poses

another limitation of the research. There might have been other overall results if the initial factors which have been identified by the programme would have not been suppressed. Generally, the results of the factor analysis was surprising, given that for most items, existing scales have been used which were checked on reliability and validity multiple times. In addition to that, the initial factor identification might could have been avoided if the items would have been formulated more distinctively from one another. In other words, all questions of information management could have been introduced asking "how often do you" and critical thinking introduced as "How often are you.." and continuing like this for the remaining two skills.

Regarding the approach of respondents, some topics should be addressed that might add further to the limitation of this research. In the email approaching the respondents, they were approached as marketing professionals or employees and the email further mentioned that the research was aimed at people working in the field of marketing. However, during the process of reaching out to respondents it was noticeable that every company has a different definition of which jobs are marketing-related. While some of the companies classified social media work as marketing, others considered it to be communication. This might have led to ambiguity among the approached sample and caused some to not participate in the research. This might have disturbed the sample pool of the respondents and caused bias.

Furthermore, the sample used for this research is rather small. It gives an indication of what findings there are but repeating the research with a larger sample might bring additional results. The reason for the low sample size is that the response rate for this research has been rather low. On average, the response rate for online surveys should be 30% (Saldivar, 2012). This could cause a non-response bias and cause only people to answer which might be well informed about the issue or otherwise have an increased interest.

This research hints towards other possible research topics. One direction for future

research would be to look into different fields. This research has only focused on the marketing sector but results might be different for different fields, different fields might require different level of skill. For that reason it would be interesting to analyse and compare the different fields of work with one another. Further, this research only focused on four 21st-century list out of the extensive list of skills. Other studies might find interesting results when looking at other 21st-century skills in the same context. It might further be interesting to look at whether the skills used might have a different definition at the workplace than the definitions which can be derived from literature.

6. Conclusion

21st-century skills are important in all areas of the world, driving companies and individual's competitiveness. In the Netherlands, marketing employees have a rather average level of information management, critical thinking, collaboration, and creativity skills. Hereby, information management scored the lowest and critical thinking highest. Work experience and voluntary training are factors which negatively influence information management, whereas emotional safety has a positive influence on creativity. These findings can serve as a starting point for organizations to be aware of their employees level of skill and help them taking measures to enhance it. As relatively little is still known about the factors which influence 21s-century at the workplace, more research is needed to analyze different work fields and skills.

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Appendix A

Literature Log

Research questions literature study

Sub questions literature study.

The sub questions for this literature study are relating to the skills used for the research as well as the factors influencing the skills.

1. How are the four skills connected to the workplace?
2. How can the four skills be described and operationalized?
3. Why are the skill important in todays world?
4. How do the skills relate to the field of marketing?
5. What are the factors influencing the four skills?
6. How do the factors influence the skills?

Concepts in research questions.

Most important terms:

- 21st-century skills
- Information management
- Critical thinking
- Collaboration
- Creativity
- Marketing
- Workplace
- Influencing factors

Criteria preferred materials

The preferred materials are scientific articles which were compiled between 2008 and 2019. Newer articles were preferred for this research, however, for more general concepts or definitions older sources were also allowed. The timeframe has been chosen as the internet and its implications started gaining importance ever since early 2000 with the foundation of social networking sites such as MySpace, Facebook, Youtube, and others. The preferred language of the articles in English.

Selected database

Web of Science, Scopus and Science Direct are the preferred search engines for the literature study. Both Web of Science and Scopus are renowned search platforms with good quality, peer review articles. They both offer a large variety of sources. Science direct only offers sources which were published by Elsevier. As an only source, this would offer very limited articles but in combination with the other two engines, it offers a broad selection of qualitative articles. Especially for social science, Elsevier is always a good publisher to turn to.

Relevant terms

Concepts	**Related terms**	**Smaller terms**	**Broader terms**
21st-century skills	Soft skills	Information management	Skills
Information management	Information literacy	Knowledge management	Information

Critical thinking	Problem solving	Reflection	Thinking skills
Collaboration	Teamwork	Collaborative learning	Colleagues
Creativity	Novel ideas	Idea creation	Creative skills
Marketing	Digital Marketing	Online marketing	Marketing agency
Workplace	Work	Work environment	Company
Influencing factors	Predictors	Work	Skill predictors

Search actions

	Date	Database	Search action	Total hits
1	11.03.2019	Web of Science	21st century skills AND collaboration skills	26
2	14.03.2019	Web of Science	Information literacy AND soft skills	68
3	14.03.2019	Web of Science	"Critical thinking" AND Marketing OR Workplace	72,311
4	11.03.2019	Scopus	Managing information AND 21st century skills	1
5	24.03.2019	Scopus	Creativity AND predictors AND workplace characteristics	1

6	12.03.2019	Scopus	“Critical thinking” OR “21st century skills” AND Marketing	338
7	14.04.2019	Scopus	Collaboration AND “Workplace characteristics” OR influenc* OR “work environment”	16,564
8	10.04.2019	Science direct	"creativity" OR "emotional safety" OR "Organisational climate" AND "21st century skills"	75.165
9	09.03.2019	Science direct	"21st century skills" OR "soft skills" AND marketing	1,210
10	12.03.2019	Science direct	"Skills" AND "marketing employees"	113

Additional search actions

	Date	Database	Search action	Total hits
1		Web of Science	Information management and soft skills	191
2		Scopus	information literacy and 21st century skills	30
3		Scopus	"21st century skills" OR "soft skills" AND "information management" OR "critical thinking" OR "collaboration" OR "creativity"	650

Selection of the found references in APA style

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Reflection

In order to get started and orientate myself on the subject, I started by reading the papers published by Ester van Laar. They all concern the topic of 21st-century skills and serve as good input to start with. Based on those papers, important concepts were identified. Further, a snowballing method was applied to get more input and discover useful sources. From there on, I searched for further literature online, using the above-mentioned search websites. In the beginning, it was most important to start looking for more general information on the topic of 21st-century skills, to get a better overview of the topic. From there on, I derived the four skills I was going to focus on and searched for literature for the skills specifically often

including 21st-century skills or soft skills in the search action. Later, as I felt I had collected enough information regarding the skills, I started looking at how the skills are related to the workplace context, marketing and whether literature already exists on factors influencing these skills. Generally, I applied a snowballing method also further throughout the research. Throughout the entire time period, I used several combinations of words in all search engines. I tried looking for articles in as many ways as possible, using varying synonyms of the concepts and different search actions. I made use of all the to me known search techniques. Most commonly I used the Boolean method and added "quotation marks" to bind separate words as one construct. Further, although more seldom, I used an Asterix * to use a word stem and still search for various possible endings of the word. An example of this can be seen above. When adding an Asterix to influenc*, the search engine automatically looks for words with all possible endings such as influenced, influencing or influences. I mostly assessed the relevance and quality of the sources by looking at the publication year and context of the literature. In addition to that, I tried using literature which seemed to be often cited in other research, if I would keep coming across a certain author or article. For the next time, I would probably start out with fewer constructs I would like to investigate, as this leaves more room for freedom when discovering interesting literature. Now, I had to run various search actions in all possible combination due to the large number of constructs.

Appendix B

Email sent to possible participants

Dear (Name/Sir or Madame),

I am writing to you due to your expertise in the field of marketing. I have found your email address on the website of (Company name).

I am currently in the middle of writing my Bachelor thesis on the topic "21st-century skills at the workplace" and am searching for people that are willing to participate in my survey. Participating in the survey will take less than 10 minutes of your time but helps me enormously.

The research is specifically focused on marketing employees, wherefore your response would be very valuable to me. The purpose of the research is to gain insight into what hinders or enhances employees 21st-century skills and be able to provide this information to companies to help them enhance their employees work performance. It is, of course, possible for you to receive the results of the research, as soon as my Bachelor thesis has been officially completed.

If there are multiple people working in marketing-related jobs in your company, it would be great if the link to my survey could be distributed among all of them. Of course, the participation in this survey is entirely anonymous and confidential and under no circumstances will any data be given to third parties.

The survey is in English and the only requirements are that the participants should be 18 or older and work in a marketing related job. Hereby it does not matter whether it is a full-time or part-time position, traineeship or internship. It also does not matter whether the company is a traditional marketing agency or a marketing team as a part of a bigger company, as long as

your job is marketing related. Further, the company should be located in the Netherlands, whether the company is also operating internationally does hereby not matter.

This is the link to my survey:

(Link)

If there are any questions, concerns or feedback, please do not hesitate to contact me, my email address is: (Email address of the researcher)

I am hoping for your cooperation!

With kind regards,

(Name of the researcher)

Student at the University of Twente,

Communication Science

Appendix C

Survey

PART 1: Demographic questions

What is your age?

(space to fill in for the participant)

Which gender do you identify most with?

Male

Female

Other (please specify)

What is your nationality?

(space to fill in for participants)

Which is the highest educational degree you completed?

Primary school

VMBO (Preparatory secondary vocational education)

HAVO (Senior general secondary education)

VWO (University preparatory education)

MBO (Vocational training)

HBO Bachelor (Degree in applied sciences)

HBO Master (Degree in applied sciences)

WO Bachelor (Degree at a research university)

WO Master (Degree at a research university)

PhD (Doctoral degree)

Has your educational degree been useful for your current job?

Yes

No

PART 2: Work related questions

Are you currently working for a traditional marketing agency or are you part of a marketing team at a bigger company which main focus is not marketing?

Traditional marketing agency

Marketing team

How many years of work experience do you have? (Relating to relevant work experience NOT working as a cashier, waitress, etc)

(space to fill in for participants)

How many years have you been working for the company you are currently employed at?

(space to fill in for participants)

How many companies have you worked for? (Relating to jobs in which you have operated in the field of marketing NOT working as a waitress, cashier, etc)

(Space to fill in for participants)

On average, how many hours a week do you actually spend working for the company?

Less than 30

30 to 35

35 to 40

More than 40

How many employees does the company have that you are currently working for?

10 or less

11 to 149

150 to 249

250 or more

With how many people do you share an office/workspace?

(Space to fill in for participants)

Does the company organise social activities, where it is possible to catch with or get to know colleagues? Hereby it doesn't matter whether the activities are meant for your specific work team of for all employees/teams of the company.

Yes

No

(If yes) What kind of activities are being organised?

Lunch

Games

Sport

Drinks

Traveling/Excursions

Other, please specify

How often is at least one of the above mentioned activities organised?

Weekly

Monthly

Half Yearly

Yearly

Are you satisfied with the amount of social activities organised?

Yes

No

Do you feel like the social activities contribute positively to the work climate?

Yes

No

Is the company you are working for offering the possibility for you to receive trainings?

Yes

No

How often is the company you are working for providing you the possibility to participate in trainings per year?

Monthly

Once per quartal

Half Yearly

Yearly

What kind of trainings are being offered by the cpageompany you are working for?

Workshops

Online courses

Offline courses (formal)

Other, please specify

Do you take the opportunity to receive additional trainings outside of work?

Yes

No

How often do you attend additional trainings outside of work?

Monthly

Once every quartal

Half Yearly

Yearly

What kind of trainings are you taking part in outside of work?

Workshops

Online courses

Offline courses (Formal)

Other, please specify

Do you feel like you have a lot of freedom over how to execute your tasks?

Yes

No

Do you feel like you have a lot of control over your work?

Yes

No

Do you feel like you are allowed to make mistakes at your workplace?

Yes

No

Do you feel like you can express concerns at your workplace without being judged?

Yes

No

Part 3: Skills

Information management

Defining

How often do you use key words instead of full sentences when looking for information?

How often do you use more than one key word to search for information?

How often do you use the Boolean method to limit the number of online search results? (e.g. AND, OR)

How often do you use multiple search actions to get the information you need?

Accessing

How often do you only look at the top results of the search engine?

How often do you find the information you were looking for?

How often do you change the search terms/keywords based on your previous search results?

Storing

How often do you save a file while working on it?

How often do you save online sources directly in the right file?

Critical thinking

Reasoning:

How often do you thoroughly think about your reasoning or argumentation before talking to others?

How often can you give concrete examples for your reasoning?

How often do you base your reasoning on an argument of others?

Decision making

How often do you consider various arguments to formulate your own point of view?

How often do you make sure that you have sufficient information about a topic before you take action on it?

Reflection

How often do you use conclusions from previous discussion to come up with a new idea/approach?

How often do you generate new input from a discussion?

How often do you connect viewpoints to give a new turn to the discussion?

Interpretation

How often do you ask questions to understand other peoples point of view?

Collaboration

Flexibility

How often do you solve conflicts with a compromise?

How often do you adjust your approach based on feedback you received from others?

How often do you change your own suggestions to benefit the groups collaboration process?

Learning

How often do you share resources with others that help them perform their task?

How often do you adopt approaches from your colleagues?

Interaction

How often do you share your ideas with others?

How often do you actively participate in meetings or knowledge exchanges?

Time management

How often do you reach your goal before the deadline?

How often do you use tools which help you to stick to your schedule?

Creativity

Idea creation

How often do you come up with new ideas for a task?

How often are your ideas considered unusual by others?

How often are you the one that thinks about multiple possibilities?

Elaboration

How often are you able to explain your ideas in a short and efficient way to others?

How often do you give an example of your idea when explaining your idea to others?

Analysing

How often do you consider whether your idea could also be used in a different way?

How often do you analyse whether your idea has been used before by others?

How often do you analyse whether your idea is feasible?

Evaluation

How often do you evaluate the usability of your ideas before presenting them to others?

How often do you evaluate how successful your idea was afterwards?

Appendix D

List of all items, their sources and descriptives

Skill	Item	*M*	*SD*	Source
Information management	How often do you use the Boolean method to limit the number on online search results	2.25	1.13	Van Laar et. al., 2018
	How often do you only look at the top results of the search engine	3.51	0.88	Van Deursen, Van Dijk & Peters, 2012
	How often do you find the information you were looking for	4.14	0.46	Van Deursen, Van Dijk & Peters, 2012
	How often do you save online sources directly in the right file	3.36	1.02	Van Laar et. al., 2018
Critical thinking	How often do you thoroughly think about your reasoning or argumentation before talking to others	3.71	0.75	Van Laar et. al., 2018
	How often do you give concrete examples for your reasoning	3.75	0.60	Van Laar et. al., 2018
	How often do you consider various arguments to formulate your own point of view	3.81	0.67	Van Laar et. al., 2018

(Continued)

(Continued)

Skill	Item	*M*	*SD*	Source
	How often do you make sure that you have sufficient information about a topic before you take action on it	3.94	0.62	Van Laar et. al., 2018
	How often do you use conclusions from previous discussions to come up with a new idea/approach	3.69	0.65	
	How often do you generate new input from a discussion	3.63	0.63	Van Laar et. al., 2018
	How often do you connect viewpoints to give a new turn to the discussion	3.58	0.73	Van Laar et. al., 2018
Collaboration	How often do you solve conflicts with a compromise	3.43	0.70	
	How often do you adjust your approach based on feedback you received from others	3.48	0.68	
	How often do you change your own suggestions to benefit the groups collaboration process	3.32	0.66	Van Laar et. al., 2018

(Continued)

(Continued)

Skill	Item	*M*	*SD*	Source
	How often do you share resources with others that help them perform their tasks	3.89	0.80	Van Laar et. al., 2018
	How often do you adopt approaches from your colleagues	3.41	0.72	
	How often do you share your ideas with others	3.93	0.68	Van Laar et. al., 2018
	How often do you actively participate in meetings or knowledge exchanges	3.73	0.80	
	How often do you use tools which help you to stick to your schedule	3.40	1.07	Van Laar et. al., 2018
Creativity	How often do you come up with new ideas for a task	3.43	0.72	Van Laar et. al., 2018

(Continued)

(Continued)

Skill	Item	M	SD	Source
	How often are your ideas considered unusual by others	2.85	0.75	Van Laar et. al., 2018
	How often are you the one that thinks about multiple possibilities	3.57	0.68	
	How often do you consider whether your idea could also be used in a different way	3.33	0.70	Van Laar et. al., 2018
	How often do you analyse whether your idea is feasible	3.77	0.80	
	How often do you analyse whether your idea has been used before by others	3.16	0.94	
	How often do you evaluate the usability of your ideas before presenting them to others	3.66	0.76	Van Laar et. al., 2018
	How often do you evaluate how successful your idea was afterwards	3.63	0.92	

*Note: All skills have been measured on a five-point Likert scale

Appendix E

Results of the factor analysis

Statement	Factor			
	1	2	3	4
IM - How often do you use the Boolean method to limit the number on online search results			0.53	
IM – How often do you only look at the top results of the search engine				
IM – How often do you find the information you were looking for		0.60		
IM – How often do you save online sources directly in the right file			0.53	
CT – How often do you thoroughly think about your reasoning or argumentation before talking to others		0.51		
CT - How often do you give concrete examples for your reasoning		0.53		
CT – How often do you consider various arguments to formulate your own point of view		0.63		
CT – How often do you make sure that you have sufficient information about a topic before you take action on it		0.56		
CT – How often do you use conclusions from previous discussions to come up with a new idea/approach	0.50			

(Continued)

(continued)

Statement	Factor			
	1	2	3	4
CT – How often do you generate new input from a discussion	0.53			
CT – How often do you connect viewpoints to give a new turn to the discussion	0.67			
Co – How often do you solve conflicts with a compromise				0.46
Co – How often do you adjust your approach based on feedback you received from others				0.63
Co – How often do you change your own suggestions to benefit the groups collaboration process				0.71
Co – How often do you share resources with others that help them perform their tasks		0.51		
Co – How often do you adopt approaches from your colleagues				0.61
Co – How often do you share your ideas with others	0.46	0.47		
Co – How often do you actively participate in meetings or knowledge exchanges	0.41	0.43		
Co – How often do you use tools which help you to stick to your schedule				

(Continued)

(Continued)

Statement	Factor 1	2	3	4
Cr – How often do you come up with new ideas for a task	0.53	0.46		
Cr – How often are your ideas considers unusual by others	0.60			
Cr – How often are you the one that thinks about multiple possibilities	0.66			
Cr – How often do you consider whether your idea could also be used in a different way	0.64			
Cr – How often do you analyse whether your idea is feasible				0.41
Cr – How often do you analyse whether your idea has been used before by others				0.57
Cr – How often do you evaluate the usability of your ideas before presenting them to others				0.54
Cr – How often do you evaluate how successful your idea was afterwards				0.58
Eigenvalue	4.49	2.29	2.04	1.75
% of Variance	12.02	10.86	8.61	7.65

IM: intended to measure Information Measurement

CT: intended to measure Critical Thinking

Co: intended to measure Collaboration