Article **Promoting Middle School Students' Career Conceptions: A Teacher Intervention**

Roberta Morici¹, Teresa Rinaldi², Alessandro Buffoli¹ and Diego Boerchi²*

- ¹ Research Centre on Vocational Guidance and Socio-professional Development CROSS, Università Cattolica del Sacro Cuore, Milan, Italy
- ² Faculty of Education, Department of Psychology, Università Cattolica del Sacro Cuore, Milan, Italy;
- * Correspondence: diego.boerchi@unicatt.it;

Abstract: Several studies confirmed the importance of career education interventions since childhood. This study aimed at testing a career education intervention designed for middle school students, conducted, after a specific training on Social Cognitive Career Theory, by students' teachers. The career conceptions were assessed in both experimental and control groups through the Conceptions of Career Choice and Attainment protocol before and after career education intervention. Result showed that. starting from the same level and increased their conceptions after the intervention. Experimental group increase, in a statistically significant way, more than the control group.

Keywords: Career development; career conceptions; career education; middle school; educational intervention

1. Introduction

Research results confirmed the role of career education in promoting career development in children [1-4].

In the career development literature, the Social Cognitive Career Theory [5] explains people processes in developing interests and achieve successful study and work performances [5-8]. Knowing that career choices change with age [9;10], the literature converges in defining it as a process that starts in childhood [11-13] and lasts throughout life, from a life-span perspective, with stages and tasks required at different ages [14;15].

Research has also identified middle school to be a time in which students can benefit most from career exploration [16] due to the development of self-awareness, the development of abilities to think abstractly, and their preferences for teamwork and active learning that may help learn about potential careers, and developing a plan for reaching future goals.

Career exploration in middle schools involves students in a difficult time disengaging from learning because they face challenges in the identity definition [17], in coping with puberty development [18], and in their process of independence, they start from family and attachment relationships [19;20].

Starting from a theoretical background, middle school becomes a natural environment for students to learn about careers and solidify problem-solving and critical thinking skills through career exploration activities.

In promoting the well-being of students, teachers' role is also crucial: they can be defined as facilitators of the career development process of children and adolescents [21]. For this reason, teachers must be sensitive to students' guidance needs to address appropriate career choice support.

The main objective of this study is to test if a specific career education intervention, designed for middle schools students and carried out by teachers after thorough training, fosters the development of more sophisticated career choices reflection, according to the

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Howard and Walsh 2011' model, Conceptions of Career Choice and Attainment model [22].

1.1. Career education and career management skills in the European framework

What children learn about professions significantly impacts their choices when they become teenagers and young adults and in their professional careers [23]. Today's labor market is characterized by continuous changes that require greater adaptability [24] and flexibility [25]. The Life Design approach defines childhood as a critical formative period in career development and professional adaptability [26]. Although children do not have to make future career decisions, it is desirable to promote career development pathways starting from childhood [27]. According to Watts [25], career education is the most appropriate career guidance model.

Career education refers to "the totality of experiences through which one learns about and prepares to engage in work as part of her or his way of living" [28] (p. 8). It represents a supportive tool that should be started at an early age, during school years, and continue throughout the individual's life because it helps individuals to acquire knowledge, skills, and attitudes necessary to make choices and to face the transitions that are the milestones of career development [25].

In this scenario, teachers are required to provide their students with learning experiences to explore their interests and abilities and foster the development of new skills and awareness of those already possessed, especially if the student ignores them [29].

In the school context, career education programs can be delivered according to the following four different models [25] the specific attached model, in which career education is included in the school curriculum as a separate subject or teaching module; the extended attached model, in which career education is included in the curriculum of a subject or teaching module; the integrated model, so defined because career education is integrated into the school curriculum as a whole; the extra-curricular model, in which career education is considered an additional activity to the traditional school curriculum.

Although career education has developed in the USA since the 1970s, it seems to be progressively spreading in Europe. Some authors described career education programs activated in European countries, such as the United Kingdom, Denmark, Germany, Greece, Netherlands, Portugal [25; 30], and France [30]. More recently, in Europe, the Council of Ministers of Education has highlighted the importance of career management skills for European citizens, which since 2007 have been one of the European Lifelong Guidance Policy Network's critical points for lifelong guidance policies [31]. The Lifelong Learning Programme is supported by the European Commission and aims to foster European cooperation on lifelong guidance. For two years (2008-2009), 15 EU member states engaged in the thematic working group on career management skills provided answers to two surveys: the first one explored how career management skills were defined; the second one investigated how career management skills were promoted in the school context and the labor market [32]. Some EU member states shifted the debate on career management skills to the broader contexts of career education or career development learning, thus emerging "the challenge of developing a shared, Europe-wide understanding of what is being referred to by career management skills" [33] (p. 228).

However, according to the responses provided by the different States involved, it is possible to conclude that, in general, career management skills are meant to contribute to the development of resources and skills that help individuals to improve the management of their life pathway [25]. In fact, within the European context, Sultana [32] distinguishes four different typologies of inclusion of career management skills in school curricula: career management skills can be treated as a separate subject (as in Austria and Malta), sometimes as optional (as in France and Slovakia). Some EU States consider career management skills as compulsory and transversal to the whole school curriculum (e.g., Czech Republic, Estonia, and Sweden). A third approach deals with the theme of career manage

ment skills through extra-curricular activities, such as workshops during transition moments. Lastly, there is a mixed approach in which career management skills are treated by integrating the previous typologies, as in France, Malta, Austria, and Finland.

Italy also responded to the surveys mentioned above by defining career management skills as a crucial resource to becoming protagonists of one's life project [32]; however, in the Italian context, career education programs are limited and mostly in pilot formats [16].

1.2. The Social Cognitive Career Theory (SCCT)

To ensure that a student's choice is as congruent as possible with their potential, it is also necessary to work on multiple levels, starting with knowledge of some of their characteristics and knowledge of the support that their context can provide, but also considering their educational experiences, expectations, and perceptions of their ability to cope with challenging academic and professional tasks. To support students in this journey, teacher training on these issues can facilitate such learning.

The Social Cognitive Career Theory [8], which is an extension of Bandura's 1986 Socio-cognitive Theory [33], is aimed at explaining how people develop academic and career interests; make and modify their training and career choice plans and achieve the performance of various qualities in their chosen academic and career paths [34].

This approach focuses on the constructs of self-efficacy, outcome expectations, and goal choices mixed to verify how these constructs interact with environmental factors to predict the decisions people make regarding their academic and career choices [35].

Self-efficacy refers to people's judgments about their skills in planning and performing pathways required to achieve specified kinds of performance.

Concerning students, it becomes necessary to identify the expectations they have of their own educational and career capabilities but, more importantly, how they assess their ability to perform more specific tasks, e.g., their ability to study, to present themselves adequately in the labor market or to overcome barriers they might encounter. Self-efficacy beliefs are developed from people's experiences and influences of their beliefs, which they interface with: because of this, they can be modified by a more realistic view of opportunities and more functional to a more challenging career path.

Outcome expectations are related to the perceived consequences of performing specific behaviors. In the SCCT model, behavior can be seen as largely reliant on people's perceptions of particular outcomes resulting from the conduct yet equally dependent on the perceived value attributed to those outcomes [8].

It is, therefore, necessary to understand students' outcome expectations concerning behaviors about their educational and career future. For example, suppose they are convinced they are not inclined to study or cannot compete with others. In that case, they will only be able to achieve significant educational results, hugely affecting their interests and choices.

Lastly, goals are the intentions to perform particular actions that proceed to the actual behavior [36]: The task of interventions and teacher training is to support the student to develop goals that are challenging and consistent with the real possibilities they can rely on.

1.3. Howard & Walsh's Conceptions of Career Choice and Attainment (CCCA) model

While some literature reviews on career development have devoted extensive attention to children's vocational [36] expectations and aspirations, decidedly less studied is how children think about and understand the world of work. A better understanding of these aspects would guide functional interventions to support career development and allow career counselors to shape appropriate interventions to support career development [37]. Career development research highlighted the importance of beginning career work with children before adolescence [37-39].

Howard and Walsh [21], starting from cognitive-developmental psychology inspired by Cognitive Development Theory [40], propose the Conceptions of Career Choice and Attainment (CCCA) model specifically to explain how individuals reflect on career development during the growing-up years. For this purpose, the CCCA model presents, in a developmental framework, conceptions that children and adolescents mature regarding how they choose and obtain a job.

The CCCA model presents three progressively more refined approaches used throughout development to understand the career choice and achievement processes: these processes are, in turn, divided into two levels, used by children to reflect on the work world and which explain the development of vocational thinking [40;22]. Each class is characterized by specific abilities to reflect on professional development. While the first rudimentary forms of thinking fall away, starting from the third level, the reasoning abilities are added from one level to the next. Thus, for example, the skills acquired upon reaching the fifth level of development are added to those of the previous two levels.

The first approach, typical of children aged between three and five, is that of Association [22] and is so named because, during early childhood, conceptions regarding professions and the processes through which to select and achieve a career are based precisely on associations. Children focus on specific and directly observable activities, experiences, and objects related to a particular profession, believing that to obtain and practice a job, it is enough to wear the uniform, use the tools, and perform the prototypical activities of the trade. Moreover, children who take this approach often need to distinguish the processes of choosing and obtaining a job as separate. They begin to explore their career dreams by formulating thoughts characterized by fantasy and heroism. The two developmental levels of conceptions of choosing and obtaining a job belonging to the Association approach are Pure Association and Magical Thinking [22].

For children who are transitioning through the first level, work exists. They need to explain how people select career options, believing they go to work. So, for example, to be a doctor, you put on a lab coat and go to a hospital. Career conceptions at this level of development consist of an incomplete list of general notions regarding a particular profession; for this reason, arguments are often characterized by confusing cause-and-effect relationships. At the next level, Magical Thinking, the importance given to appearances becomes even more meaningful: at this level, the child believes that to get a job, it is enough to have the typical objects of that job and accepts the existence of a simple method for making choices and achieving a specific career (e.g., getting on the fire truck to be a fireman), but a mechanism for implementing that method (i.e., how one gets to be able to get on that truck) or the skills and characteristics required to acquire and practice a specific profession is not made explicit.

The second thinking approach, the Sequence approach [22], appears as children become more aware of their strengths and weaknesses in particular areas of functioning concerning others. According to this approach, children conceptualize career choice and attainment separately and can explain how these processes are related in concrete terms. Children and preadolescents at this developmental stage recognize in a spatiotemporal linear sequence the mechanism that leads people to choose and obtain a particular job: they understand how, for example, to be an architect, it is necessary to finish school and go to college. The two levels of conception development for choosing and obtaining a job belonging to the Sequence approach are External Activities and Internal Processes and Capabilities. As mentioned above, starting from the third level of the CCCA model, the cognitions and factors considered for thinking about how people choose and get a job are gradually added up, while the rudimentary conceptions of the Association approach decay.

In Level 3, External activities, children describe a simple process by which people acquire knowledge about professions and choose the one they prefer: job choice depends on preferences taking into consideration observable activities needed for achievement. In Level 4, Internal processes and Capacities, children begin to match themselves to a job.

Preadolescents describe the career choice process as a correspondence between themselves and a current job. For example, according to this perspective, if a person enjoys playing football and is also good at it, they might work as a professional football player. Thus, preadolescents at this level think that people choose jobs based on what they can do and consider how attracted they are to the activities performed in that profession. Finally, getting the job would depend on learning and possessing the skills needed. Career achievement depends on learning the required skills and having the physical abilities necessary to perform that job [22].

The third approach is Interaction [22]: it is typically used beginning in adolescence and then refined in adulthood. Unlike the previous one, this approach no longer presents any determinism: processes of choosing and obtaining a job may have different outcomes from those initially imagined because they are influenced by various factors, some of which may be beyond the individual's control. People using this approach believe that choosing and obtaining a job is determined by the multidimensional and complex interaction between one's characteristics (interests, skills, predispositions, values), influences from the environment (opportunities to develop specific skills) and systemic factors (job characteristics, job availability, labor market conditions, etc.). The Interaction approach presents the last two levels of vocational thinking development: Interaction and Systemic Interaction [22].

Individuals at the fifth level of development of career conceptions, in reflecting on the processes of choosing and getting a job, identify a dynamic interaction between individual, relational and environmental factors, including predispositions, interests, skills, and competencies needed to do that job, salary, distance from home, working hours, tasks required, figures with which one would like to interface in doing the job, etc.

In addition to the factors mentioned above, systemic factors are added to the Systemic Interaction level, such as employment trends, labor market conditions, the emergence of new areas of employment, and emerging jobs, often due to technological progress.

The Systemic Interaction level has reached the climax of the development in conceptions of choosing and obtaining a job. Although this model is intended to explain how such concepts develop during the developmental age, it's important to clarify that there is no strict correspondence between the subject's age and level of development. References to age are approximated, and in professional practice in educational guidance and career counseling, it is possible to encounter subjects who show a level of development of career conceptions that differs from that expected for their childbearing age.

Two studies tested the CCCA model [22]. The first one aimed to verify whether the model could be a valid developmental model by investigating whether the levels of the conception of career choice and career attainment varied according to age. The authors interviewed sixty children attending different grades (20 in kindergarten, 20 in the 3rd, and 20 in the 6th grade), assuming that younger children would provide answers matching the Association levels. In comparison, older children would show a status of reasoning equivalent to Integration levels.

Interviewers used the Conceptions of Career Choice and Attainment Protocol [22], a semi-structured interview aimed to investigate children's level of knowledge of the processes leading to both choice and career attainment. Findings of this first study showed that kindergarten children were more likely to use Association levels of reasoning; third-grade children mainly exhibited sequential levels of reason; sixth-grade children also showed sequential levels of reasoning and, besides, 15-25% of them provided explanations with characteristics belonging to the Interaction approach, however without reporting answers corresponding to the sixth level of reasoning. This study confirmed that the CCCA model and the related interview protocol were able to assess children's progress regarding career choice and attainment.

The second study involved 72 preschool, high school, and secondary school students. It aimed to replicate and extend the results of the previous research, trying to investigate

whether the children's reasoning about choice and career attainment varied according to the level of complexity of perspective-taking. This level was assessed through the Coordination of Perspective task [41]: it requires the child to integrate various perspectives between the observer and the objects observed, and between the things, compared to each other. To successfully perform this task, children must be able to detach themselves from the immediate visual scene and imagine the scene from another position. Thus, the activity requires the ability to shift away from their point of view [41]. In addition to the Coordination of the Perspective task, the authors applied the Conceptions of Career Choice and Attainment Protocol previously described. Both the assessment methods confirmed that older children showed more sophisticated levels of reasoning than younger children and that those with more complex perspective-taking abilities were more likely to engage in higher levels of reasoning about career choice and attainment [22].

2. Materials and Methods

2..1. Aim

This study aims to test whether an intervention designed for middle school students would develop reasoning levels about career choice and career attainment. The career education intervention was based on the SCCT theory related to teachers' training and materials designed and used for the intervention [33] and the CCCA model [40;22] to promote self-knowledge and explore different professions and the development of career choice skills.

2..2. Sample

This study involved five teachers and five-second classes of a middle school in Milan, in the north of Italy, with a total of 114 students between males (n = 62) and females (n = 62) – including 20.1% of foreign nationality – aged between 11 and 15 years (M = 12.11 years; DS = 0.50). The sample was divided into an experimental group (n = 69), consisting of three classes, and a control group (n = 45), consisting of the two remaining courses. Because the activities were designed for class participation, assigning the children randomly to the experimental and the control groups was impossible. Furthermore, some classes could start earlier with the career intervention, and others not due to the didactic activities already planned for the second quarter of the school year. Based on these issues, three classes formed the experimental group, and the remaining two formed the control group. Parental informed consent and verbal assent from the children were obtained, and the interviewer recorded their responses. The research was conducted according to APA ethical standards.

2.3. Study design

This study consists of a training course for the teachers of the classes involved and orientation skills training activities for the students designed from the SCCT theory [33]. In the first stage, career education workshops were conducted by class teachers belonging to the experimental group, sometimes under the non-participant observation of the experimenter. At the end of the activity period with the experimental group, the control group was also allowed to participate in the project. This second experimentation phase was conducted entirely independently by adequately trained teachers. The experimenters, previously trained teachers in the CCCA model, then designed the following sevenmonths intervention.

2.3.1. Teacher training course

The training sessions were organized in four weekly meetings for a total duration of eight hours and covered the following contents:

- first session: presentation of the SCCT model [33] and the practical implications of the project;

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- second session: Howard and Walsh's CCCA model [22] and the CCCA interview protocol presentation;

- third session: presentation of possible career education activities to be proposed to students;

- fourth session: co-design of activities based on teachers' needs and students' guidance needs reported by them.

2.3.2. Students' intervention

Step 1 (pretest): every student responded verbally to the Conceptions of Career Choice and Attainment (CCCA) Protocol.

Step 2 (intervention): The career education workshop for students included exercises and game activities that involved students directly, either individually or in groups or teams. Activities were carried out both during school hours - now by adequately trained teachers - and independently by the students at home. The career education activities offered to the experimental group required an average in-school commitment of one hour per week for ten weeks. The dimension investigated in each activity was self-efficacy, outcome expectations, self-knowledge, job knowledge, and choice-making ability. Materials for conducting the activities were provided weekly to the project coordinating teacher. These were made in a way that some of them included attachments that, after being duly completed by the pupils, could be collected in a student's portfolio.

Step 3 (posttest): At the intervention's end, the experimental and the control group repeated the CCCA Protocol.

The control group attended the IMAGE project's activities after the posttest phase's end.

2.4. Measure

2.4.1. The Conceptions of Career Choice and Attainment (CCCA) Protocol

Howard and colleagues 2010 published an article in which they included the Protocol used for the interviews [40]. After the protocol request to the authors, by a back translation process, researchers involved in this study obtained the Italian Version.

The protocol consists of a semi-structured interview with seven open-ended questions about career choice and job attainment.

3. Results

Because even in this study, the data collected were ordinal. The Mann–Whitney U test was used separately for each assessment to examine potential differences in scores between experimental and control groups on the Conceptions of Career Choice and Conceptions of Career Attainment. Group belonging served as the independent variable, while frequencies observed for each level designation on the Conceptions of Career Choice and Conceptions of Career Attainment served as the dependent variables. It was expected that the sample at the time of the pre-test would have career conceptions corresponding to Levels 3 or 4 of Howard and Walsh, according to these authors and the existing literature on the career development of children and adolescents [40].

3.1. Conception of Career Choice

The Mann–Whitney U test on independent samples showed no statistically significant difference between the two groups' career choice conceptions in the pre-intervention condition. In the post-intervention condition, a statistically significant difference was found between the two groups. Based on the analysis of the response frequencies obtained from the CCCA protocol (Table 1), career choice conceptions improved more significantly in the experimental group, which in the post-intervention showed a reduction in Level 3 answers and an increase in those attributed to Levels 4 (answer example: "*To get a job you choose what you would like to do, so you study in that field, get a degree or learn the trade. But I*

don't know how to look for a job") and 5 (e.g., "A person chooses based on what they like, the salary and the stability of the job especially if they have a family. Maybe at the beginning, you have an idea, but then you continue your studies, and you realize it's not your path, and you change your mind; maybe at the beginning, you do a job to start working so you learn other skills and prepare yourself for the job you would like to"). In addition, the experimental group achieved Level 6 responses compared to the control group. The control group also showed an improvement, but it appears to be statistically less significant.

	Level 3	Level 4	Level 5	Level 6				
Pre-intervention (<i>U</i> (1, 114) = 1686.000, <i>z</i> = .871, <i>p</i> = .384)								
Experimental group	38 (55%)	26 (37.7%)	5 (7.2%)	0 (0.0%)				
Control group	20 (44.4%)	23 (51.1%)	2 (4.4%)	0 (0.0%)				
Post-int	ervention (U (1, 114) = 1116.000, z = -2.791, j	v = .005)					
Experimental group	11 (15.9%)	33 (47.8%)	24 (34.8%)	1 (1.4%)				
Control group	12 (26.7%)	28 (62.2%)	5 (11.1%)	0 (0.0%)				

Table 1. Observed frequencies for conceptions of career choice by the group.

3.2. Conception of Career Choice

Also, in this case, the Mann-Whitney U test on independent samples showed that, in the pre-intervention condition, there was no statistically significant difference between the two groups' career attainment conceptions. In the post-intervention condition, a statistically significant difference was found between the two groups. To investigate this, the frequencies of the levels assigned from the interviews were calculated (Table 2). Once again, conceptions of career attainment improved significantly in the experimental group, which in the post-test showed a reduction in Level 3 responses and an increase in Level 5 answers. In contrast, the percentage of subjects providing Level 4 responses remained unchanged. An example of a Level 5 answer is:" "Adults find jobs by committing to their studies; with a degree, you have a better chance...maybe they even take courses to improve in that job. After studies, they look for job ads" or "Adults get a job by showing a cv to employers: they choose whether to let you interview." In addition, compared to the control group, the experimental group achieved Level 6 answers: "Adults look for jobs online; maybe they look for internships. After they find the ad, they go to the job site and interview by bringing a cv, and you don't have to have a criminal record". The control group also improved, but it seems statistically less significant.

Table 2. Observed frequencies for conceptions of career attainment by the group.

	Level 3	Level 4	Level 5	Level 6				
Pre-intervention (<i>U</i> (1, 114) = 1672.000, <i>z</i> = .755, <i>p</i> = .450)								
Experimental group	32 (46.3%)	26 (37.6%)	11 (15.9%)	0 (0.0%)				
Control group	16 (35.6%)	23 (51.1%)	6 (13.3%)	0 (0.0%)				
Post-intervention (U (1, 114) = 1215.000, z = -2.088, p = .037)								
Experimental group	10 (14.4%)	26 (37.6%)	28 (40.5%)	5 (7.2%)				
Control group	11 (24.4%)	20 (44.4%)	14 (31.1%)	0 (0.0%)				

4. Discussion

The study was designed to investigate if specific career education interventions could develop levels of reasoning about career choice and attainment in middle school children. The experimental and control groups did not differ before the intervention. There was no statistically significant difference between the two groups compared to the levels of conceptions of career choice and attainment, which ranged from 3 to 5. Positive effects of career education interventions were found, highlighting that procedurally the two groups were balanced, while developmentally, they were comparable. Considering that the control group only attended the workshops created for this project after the end of the experimental group posttest phase, the results suggest that only a structured intervention, such as the one dedicated to the experimental group, can foster career development consistently concerning a natural evolution of children reflections.

The validity of the CCCA model was confirmed: students at the beginning have been attributed to levels consistent with their age, according to the previous study by Howard e Walsh [22]. Further validation came from the natural development of the children belonging to the control groups. Our expectations supported by the previous literature about children's career development [42;43] were confirmed because around one and a half years passed from the beginning to the end of the interventions.

Results showed that if an intervention is designed from a scientifically selected and validated psychological model like CCCA and SCCT ones, the development of career management skills is speeded up and becomes more concrete for students [27]; in this case, it can be found in differences observed between the levels assessed to the students of the experimental groups at the beginning and the end of the interventions are not entirely attributable to the interventions themselves, because in part are due to the natural development, while the differences observed between experimental and control groups at the end of the protocols.

It is also important to emphasize the role the training course played for teachers: making teachers competent in designing interventions makes any attempt at skill development more reliable and more likely to succeed. In this study, the preservation of the material produced by each student during career education activities allows for continuity between what was acquired during the orientation skills training course and future orientation interventions dedicated to third classes planned by the educational institution. As described earlier, the role of teachers is also to facilitate students' acquisition of good work habits and decision-making skills [28]. The results show that teachers are not only a tool for transmitting knowledge but a guide in students' learning process [44]. Teachers' commitment "to motivate, provide examples, discuss, facilitate, support, and challenge, but not attempt to act as a conduit of knowledge" [45] (p. 11) was demonstrated by the results obtained as these actions reflect the attitude that must be taken by teachers who intend to integrate career education into instructional activities, through the use of career-oriented materials that can motivate students in the whole learning experience [28].

The results align with literature that underlines how career exploration is a process of learning about oneself and the world of work that leads students to identify potential career pathways and design strategies for realizing them [45].

The study had some limitations: first of all, a small number of participants. Future research should involve a larger sample to produce more solid findings, testing the effectiveness of the intervention among students with different conditions, like career development starting level, family SES, or parents' qualification. Furthermore, it was not possible to test whether the regular school activities that occurred during the intervention period affected the results of these studies because they also depended on the teachers who were different for the classes. Thus, future studies should provide career education interventions that aggregate students from other classes to be mixed with mitigating the effects of belonging to one class or another. Lastly, the career education intervention was conducted by the teachers. Even if it's a further confirmation of the effectiveness of the intervention, teachers were trained together. In the same way, it should be tested whether

personality or teaching styles could influence the management of the activities and, therefore, their effects on the students.

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