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THE RELATION BETWEEN STUDENT MOOD AND HANDICRAFTS IN THE CONSTRUCTIVIST CLASSROOM

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Abstract/Povzetek The purpose of this paper is to emphasize the importance of handicrafts from the perspective of various pedagogical perspectives. Although the findings of numerous researchers support the positive effects of handicrafts, those teaching methods are rarely used in school either. The empirical section of this paper aimed to explore the relation between student mood after performing a handicraft assignment and attitudes towards the assignment. A total of 16 students between the ages of 11 and 12 were sampled from the same classroom in order to conduct this preliminary study. All the students had previous experience with sewing, which was taught to them by their teacher, with whom they have been working on various handicraft activities since the first grade of elementary school. An anonymous survey was created and administered to the participants. The results of this study suggest that handiwork in the classroom has potential implications for improving the students' mood and creating a positive learning environment.

Keywords:
constructivism;
handicrafts;
mood;
sewing.

Odnos med razpoloženjem učencev in ročnimi deli v konstruktivističnem pouku

Namen članka je poudariti pomen ročnih del z vidika različnih pedagoških perspektiv. Čeprav ugotovitve številnih raziskovalcev podpirajo pozitivne učinke ročnega dela, se te metode poučevanja v šoli redko uporabljajo. Cilj empiričnega dela tega članka je bil povezati razmerje med razpoloženjem učencev po izvajanju naloge iz ročnega dela ter njihova stališča do te naloge. Za izvedbo preliminarne študije je bilo v vzorec iz istega razreda skupaj zajetih 16 učencev v starosti 11 ali 12 let. Vsi učenci so imeli predhodne izkušnje s šivanjem, ki ga jih je poučeval njihov učitelj, s katerim so na različnih dejavnostih ročnih del delali od prvega razreda osnovne šole. Oblikovana je bila anonimna anketa in izvedena z udeleženci. Rezultati te študije kažejo, da ima ročno delo pri pouku možne učinke na izboljšanje razpoloženja učencev in ustvarjanje pozitivnega učnega okolja

Ključne besede:
konstruktivizem;
ročno delo;
razpoloženje;
šivanje.

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Introduction

Contemporary educational paradigms emphasize the importance of student-centered teaching, which is consistent with the constructivist theory in education (Fosnot & Perry, 2006; Pritchard & Woollard, 2010; von Glasersfeld, 1989, 1995, 2001). Palekčić (2002) and Babić (2007) define the constructivist approach to teaching as a constructive and situational process that focuses on providing support, encouragement and counseling to students. Furthermore, this approach emphasizes the importance of individual growth during interactions with the external, physical environment, as well as with internal, innate processes. One of the fundamental postulates of constructivist theory is the definition of knowledge as an individual construct, so there are different perceptions of reality and multiple truths (Duffy & Cunningham, 1996; Duffy & Jonassen, 1992). According to Babić (2007), that postulate has significant implications for education because learning is an active process that constructs knowledge, and during that process, teachers must support students and consider the errors they make along the way as positive outcomes because these provide teachers with insight into the students' experiential world. The contemporary perspective on teaching, which supports individualized teaching and attempts to fulfill the needs of all children in order to help them feel successful, also emphasizes that intellectual achievements in school are not the only, absolute measures of success. Matijević (2017) considers Gardner's theory of multiple intelligences as the key for defining the concept of success in pedagogy (Gardner, 1983). That theory has also been adopted by didactic theories and contemporary teaching practices (Armstrong, 2006). According to Turković (2009), Gardner's theory called for increasing attention to individual characteristics of students in education because some students learn better with visual materials, whereas others might prefer auditory or written materials, and schools should allow them equal opportunities to develop their abilities. Schools that implement the theory of multiple intelligences in practice are dedicated to developing their students' understanding, and they encourage students to use their knowledge for solving problems and performing the tasks they face in their local communities, while striving to activate each student's unique combination of intelligences and assess their development accordingly (Gardner 1993, as cited in Armstrong 2006). Student-centered education is also supported by findings from the field of neuroscience: learning through research and problem solving, situational and experiential learning, project-based learning, cooperative learning, activity-based learning, and learning by playing are innate learning mechanisms (Lawson, 2003, as cited in Velički & Topolovčan, 2017).

That is why the objectives of classroom activities should include the development of various competences, skills, and abilities that will be useful to students for living and working in contemporary society and direct them toward a path of lifelong learning. To achieve these objectives, practical work is essential because different approaches to learning have positive effects on different aspects of development, including motor, intellectual and emotional growth. The value and appreciation of practical work and handicrafts in the classroom have been changing over time, and those activities are now, in Croatian elementary schools, almost completely neglected and marginalized (Matijević, 2001) because some practice-based subjects have been canceled (e.g., shop class and home economics), while the time allocated to others has been minimized, as is true for visual arts, music (Turković, 2009), and nature and society. However, the Finnish education system, as one of the most advanced education systems in the world, assigns great importance to crafts and handiwork, and various scientists (Autio, 2016; Garber, 2002; Pöllänen, 2013a, 2013b; Pöllänen, 2015a, 2015b) emphasize the advantages of handiwork not just for children and students, but for the general population as well. Pöllänen (2012, 2013a, 2013b, 2015a, 2015b) conducted several studies on a sample of subjects between 16 and 84 years of age and found that doing handicrafts reduces stress and calms the mind, has positive effects on health because of its recreational component, increases satisfaction, promotes optimism, creates positive connections and support systems, and helps people deal with negative emotions. The aforementioned studies define handicrafts as a multidisciplinary phenomenon that needs to be encouraged during elementary education, and whose effects on education outcomes should be researched. The seminal work of Komensky, Rousseau and Pestalozzi, as well as more recent work by Steiner, Freinet and Montessori in the 20th century, emphasizes the importance of handicrafts in education. Pestalozzi conceptualized the three dimensions of learning: the intellectual dimension related to the head, the moral dimension related to the heart and the physical dimension related to the hands (Kuhlemann & Brühlmeier, 2002). Therefore, handicrafts, as an essential part of arts and trade schools, forms one of the dimensions of learning. Learning through activity is especially important for children because they learn best by touching and moving and through sensing and experience, so preschool and primary school are the periods during which learning is best conducted with physical activities (Centofanti, 2002). Handicrafts as a method of learning by working with the hands is supported by the followers of Rudolf Steiner, Maria Montessori and Celestine Freinet (Acker, 2007; Carlgren, 1991; Matijević, 2001). Waldorf schools, which follow the pedagogical concept of success for all, use arts and physical labor as a counterbalance to intellectual education. Art education consists of various activities – singing, playing recorders,

eurhythmics, drawing, drama and theater plays – while physical labor is introduced in subjects such as crafts, woodwork, gardening and handiwork, which is a mandatory subject starting from the first grade and teaches students knitting, crocheting, embroidering, felting, and sewing by hand or with a machine (Carlgren, 1990). Maria Montessori emphasized persistence, coordination, concentration, freedom of choice, order and innate motivation through handiwork and practical exercises (Philipps, 2003). Over the past few decades, neuroscientists have also been studying the importance of handicrafts. The skills associated with handicraft are connected with motor skills. Motor skills encompass all skills associated with actions involving movement and the ensuing results of those actions (Newell, 1991). One example is learning to play a musical instrument. Various authors consider that learning to play a musical instrument during childhood supports cognitive development and increases skill even in non-music related disciplines (Bangerter & Heath, 2004; Hyde et al., 2009; Wan & Schlaug, 2010). Early dance education can also develop skills that are transferable to cognitive disciplines (Petitto, 2008). Furthermore, performance-based art forms (music, drama and dance) increase focus and memory because they are taught through rehearsal and repetition, and those skills are then transferred to other memory-related cognitive skills (Jonides, 2008). Various authors (Huotilainen, 2013; Steele et al., 2013) have found that a higher number of repetitive movements causes structural change in the brain. Wan and Schlaug (2010) confirmed the same findings regarding repetition while practicing instruments, whereas Hyde et al. (2009) reported that 15 months of music education in early childhood can significantly alter the brain as a result of practical work, since those changes cannot be explained by biological factors alone. Therefore, learning new skills alters not only our physical brain, but our sense of self, as well (Marchand, 2008). Autio (2016) found that students, boys and girls alike, are highly-motivated to work with their hands; they are attracted to trade schools, enjoy working with their hands and enjoy the independence and creative expression opportunities that this teaching approach gives them (Silverman & Pritchard, 1996). Likewise, students who enroll in technical schools are attracted to projects that will engage them (Weber & Custer, 2005). Marchand (2008) argues that practical knowledge needs to be valued not just because of productivity or the role of skills in the economy, but because practical knowledge is an important determinant of satisfaction in personal and professional life. Garber (2002) notes the relationship between handiwork and brain development, so the physical dimension of learning must not be "lost in the education system" (p. 142), and future studies should investigate the hierarchy of valuation of that which children learn in schools based on what is important for life and work. It is important to mention that handiwork in the context of trade education provides an experience that is an alternative to

consumerism and materialism. Pöllänen (2013a, 2013b) demonstrates that crafts provide tools that can prevent cultural decline. According to that study, people who create with their hands (i.e., trade workers) are less susceptible to consumerism, focus their life on friends and family, and live a fulfilled life, so handiwork in the future could promote sustainable development because it helps individuals understand the ecological consequences of their actions. Despite many studies, the findings of neuroscientists, the postulates of the theory of multiple intelligences, the numerous pedagogical concepts that emphasize the importance of handiwork, and the fact that handiwork is beneficial not just for the children involved but also for the entire society, this approach to learning is underrepresented in Croatian elementary education. According to Bereiter and Scardamalia (2003), teachers should focus their teaching efforts on preparing students for lifelong learning and the production of creative innovations, which would require adoption of the constructivist approach to teaching and student-centered learning. The purpose of this preliminary study was to examine the relation between the students' mood after completing their handicraft assignment and their attitudes associated with the assignment at hand.

Methods

Participants

A total of 16 elementary school students between 11 and 12 years of age, 7 males and 9 females, participated in this study. All participants had previous experience with sewing, but only two students had learned to sew at home or in kindergarten, while the rest learned to sew in school. The students represent a specific group because they have been learning various handicraft activities from their teacher, such as sewing and embroidery, since the first grade, even though those activities are extracurricular. Given the unique nature of the lesson plan for those students in comparison to their peers in other classes and schools, this study used a convenience sampling strategy.

Data Collection

An anonymous survey was designed to measure (using a 5-point Likert scale) the students' attitudes about a handiwork assignment, which was to sew a horse on a stick to be used as a prop in a school play. The props were later sold at the school fair. This kind of activity takes more time than most similar activities, such as drawing or paining in visual arts. It is possible to define the activity as project-based learning, which in this case requires persistence, engagement and concentration, but the students are also motivated because their work will have an application. The

scale consisted of 28 items, which measured four independent variables and one dependent variable. The composite variable *Low self-efficacy* was measured with 11 items assessing their self-efficacy (e.g., "I didn't believe I would be able to complete the assignment"); need for help with the assignment (e.g., "I needed help from a friend in my group"); and the need for validation upon completion (e.g., "I needed a compliment when I was done with the assignment"). The consistency of the scale was considered to be good (Cronbach's $\alpha = 0.89$). The variable Positive Attitude refers to the students' beliefs in their ability to complete the assignment (e.g., "My persistence was helpful"), their attitude about the task in general (e.g., "I liked the assignment") and the creation process (e.g., "I was in a good mood during the assignment"). This subscale consisted of 6 items and had an acceptable level of internal consistency (Cronbach's $\alpha = 0.63$). The composite variable *Outcome* consists of four variables that measure attitudes about the outcomes of their assignment, that is the attitude towards the importance of the activity for their growth (e.g., "I believe that sewing and puppet making are important skills") and the importance of what other people think about their product (e.g., "My parents' opinions about my product are important to me"). The subscale had a good level of internal consistency (Cronbach's $\alpha = 0.87$). The composite variable *Changing* attitude consists of five variables that measure how the students' attitude changes as they start working on the assignment. Although some students were uncertain of their ability to complete the assignment, their attitude could change at the beginning of the assignment (e.g., "The assignment became easier when I started working on it") or at any point during their assignment (e.g., "When I saw the form of my product coming together, I no longer feared failure"). The internal reliability of this subscale was good (Cronbach's $\alpha = 0.84$). The variable *Mood* was measured with one item in the questionnaire: "I was in a good mood when the assignment was over."

Results and Discussion

The results of the descriptive statistics are shown in Table 1.

Table 1. Descriptive statistics by variable.

Variable	n	Mean	St. Dev.	Median	Min	Max	Skew	Kurtosis
Low self-efficacy	16	3.26	1.09	3.27	1.18	4.46	-0.58	-1.08
Positive attitude	16	4.49	0.45	4.67	3.50	5.00	-0.70	-0.62
Outcome	16	3.93	1.22	4.25	1.00	5.00	-0.91	-0.30
Changing attitude	16	4.32	0.81	4.80	2.60	5.00	-0.93	-0.56
Mood	16	4.87	0.35	5.00	4.00	5.00	-1.95	1.93

The mean difference between the independent variables and the dependent variables, as well as the normality of the distribution of differences between them, is presented in Table 2. Normally distributed data was analyzed using a paired sample t-test because the t-distribution solves the problem of accurately estimating standard error in small samples as long as the variables follow a normal distribution (Diez, Barr, & Çetinkaya-Rundel, 2015). Non-parametric data was analyzed using the Wilcoxon signed rank test as an alternative to the paired sample t-test because non-parametric tests are better than parametric tests for analyzing non-normal data obtained from small samples (Sullivan, 2017).

Table 2. Mean difference and normality test result of the differences between the independent variables and the dependent variable.

Variable	**Mean difference**	**95% CI (lower, upper)**	**K-S**	**p**
Low self-efficacy	-1.61	-2.21, -1.01	0.24	0.02
Positive attitude	-0.38	-0.63, -0.13	0.21	0.09
Outcome	-0.93	-1.59, -0.27	0.22	0.06
Changing attitude	-0.55	-0.99, -0.10	0.27	0.005

According to the comparison of the mean differences listed in Table 2, the students' mood after the assignment was significantly higher compared to the variables *Low self-efficacy*, W = 120, p = 0.001, *Positive attitude,* t = 3.21, p = 0.006, *Outcome,* t = 3.03, p = 0.009*,* and *Changing attitude*, W = 51, p = 0.019. Because this test was conducted using a paired sample, the results indicate that each individual student evaluates their mood as significantly higher than they evaluate their attitudes about the handiwork assignment they completed. These results are consistent with the findings from other authors who have investigated the effects of handiwork on mood (Autio, 2016; Silverman & Pritchard, 1996). Those studies found that handiwork had a profound effect on students, as they enjoy that type of work because it makes them feel fulfilled and allows them the freedom of creative expression. Handiwork promotes a positive mood and environment, which is one goal of a constructivist teaching approach that focuses on creating an environment where students are free to express themselves; it also fulfills the students' needs by providing them with support, encouragement and counseling (Palekčić, 2002; Babić, 2007). These results can also be associated with alternative schools that include handiwork in their official curriculum because of its importance for the holistic development of students. Pöllänen (2012, 2013a, 2013b, 2015a, 2015b) also confirms the positive effects of handiwork on satisfaction, optimism and the

formation of positive relationships and support networks. A weak positive correlation was found between the students' mood and low self-efficacy, but it was not statistically significant, $r = 0.25$, $p = 0.37$. Moderate, but non-significant, positive correlations were also observed between the students' mood and the following variables: *Positive attitude*, $r = 0.41$, $p = 0.12$, *Outcome*, $r = 0.32$, $p = 0.24$, and *Changing attitude*, $r = 0.33$, $p = 0.24$. Although these results are not statistically significant, the correlations are positive, and it is important to note that the strongest correlation observed was the one between the students' mood and their *Positive attitude*, which measures the students' beliefs regarding their ability to complete the assignment because of their persistence and skill. The association between the students' mood and the composite variable *Outcome* implies that students find the product of their work important, but they are also concerned with what others (i.e., parents, teacher and friends) will think about their work. Since the *Outcome* variable represents a combination of intrinsic (i.e., innate) and extrinsic (e.g., physical environment, parents, teacher and friends) factors that contribute to a better mood, the positive relationship between the two variables can be associated with the postulates of constructivist approaches to teaching, which aim to improve the environment in order to facilitate social development, learning, creation and holistic individual development (Babić, 2007; Duffy & Cunningham, 1996; Palekčić, 2002). The association between the students' mood and their *Changing attitude* is also positive, which would suggest that the students' mood after the activity improves as the sense of insecurity decreases. According to Marchand (2008), learning new skills changes our sense of self. In other words, from the perspective of modern constructivism, it is important to encourage students to feel successful in a range of activities, not just based on the intellectual achievements that are usually evaluated in schools.

Conclusion

In the context of the contemporary constructivist approach to education, it is important to consider the different approaches that facilitate students' holistic development (i.e., cognitive, emotional, and motor). This paper focuses on considerations about the importance of practical work, handicraft, which is almost completely neglected and marginalized in elementary schools. The purpose of this preliminary study was to investigate the relation between the students' mood after completing a handicraft assignment and their attitudes about that handiwork assignment. The results showed that students rate their mood significantly higher than any other variable measured in this study, including *Low self-efficacy* (participants' beliefs in their ability to succeed at the assignment), *Positive attitude* (the strong belief by the participants in their own ability to complete the assignment and

their attitudes about the assignment and work in general), *Outcome* (attitude about the importance of the activity for their growth and the importance of what other people think about their product), and *Changing attitude* (despite initial insecurities, the participants can change their attitudes and belief in their skills as they start working on the assignment). Although correlations between the variables were non-significant and weak or moderate, all correlation coefficients were positive, so the mood of students after participating in a handicraft task is expected to increase along with their confidence in their own skill and their satisfaction with the topic and their final product. Considering the low strength of the correlations observed and the low sample size characteristic of preliminary studies, it is not possible to make general inferences, which means that any generalizations based on these findings should be made with extreme caution.

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