# HIERARCHICAL STRUCTURE OF THE IMPORTANCE OF TEACHING CONTEXT IN GENERAL TECHNOLOGY EDUCATION

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**Abstract:** The teaching context can play an important and sometimes key role in learning process, and thus in achieving the goals of general technology education. Given the integrative function of technology education, which integrates knowledge from different fields into applicable and meaningful student activities, the quality of achieved teaching goals often determines the future professional and career development of pupils. Therefore, the implementation of teaching in an appropriate context, which will provide students with the opportunity for successful learning, is an important segment of the success of technology education. However, in the real school environment, learning and teaching often take place in a decontextualized way, which is why the teaching goals that society expects from the individual are not achieve. Therefore, the aim of this paper is to establish and argue the importance of specific elements of the context of teaching general technology education and to build a hierarchical structure of these elements that will give priority to certain elements over others. In this way, at the level of policies, but also at the level of operationalization of the curriculum, they want to lay the foundations that will ensure the appropriate achievement of the goals of this teaching, as a segment of education important for the development of each individual. For this purpose, a qualitative analysis of the existing research of the teaching context and the attitudes of teachers of technical culture towards the role of the teaching context in achieving the goals of teaching was conducted. The results of two previous empirical researches conducted by the authors used for the analysis, and the results of which indicate the consistent attitudes of teachers, as important factors in the quality of each teaching. Based on the analysis, the hierarchical structure of the elements of the teaching context was established, and the importance of each element for achieving the main goals of general technology education was qualitatively argued. The analysis highlights the priority groups of elements of the teaching context, which divided into dominant activities, significant periodic activities, dominant contextualization, subject-specific contextualization, and general contextualization. The dominant group consists of pupils' activities with artifacts of technology, presentation of their own results, use of models and simulations, service learning activities and professional excursions. Other elements can be considered only a part or means of contextualizing teaching. Ultimately, the selected groups and all elements of the teaching context were implemented in the model of contextual learning and student development, as the backbone of learning and teaching in general technology education. The model basically represents a cycle of reflection on learning and teaching technology, which can be applied to every level of learning and teaching engineering and technology. Such a model can, at the macro and micro level, form the basis for the planning, organization and implementation of general technological education and thus be an important theoretical basis for the operationalization of the curriculum of this teaching.
**Keywords:** reflective cycle, teaching goals, contextual learning, teaching context, technology education.

## 1. INTRODUCTION

Teaching and learning of technology always focused on goals whose achievement enables the student to successfully navigate and orient in a modern technological society, but in future professional and career development. Therefore, technology education also has an integrative function (de Vries, 1996; Milat, 1996), which integrates knowledge from different areas into meaningful students' activities. However, in order for a student to accept such activities, they should have sense and meaning for her / him, that is, they should take place in an appropriate teaching context (Purković, 2018). The teaching context is described as a system of internal and external factors and actions that can influence perception, understanding and transformation in a given situation, and that determine the meaning and feeling for the situation as a whole and for the components of that situation (Verbitsky and Kalashnikov, 2012). By transforming the context into a learning and teaching environment, it is possible to distinguish the structural and functional aspects of the teaching context. The structural or content aspect connects new content with original and socially relevant knowledge, while the functional or didactic aspect integrates new content into a stimulating learning environment. Therefore, the structural aspect consists of the contents and objects (artifacts) of technology, and the functional ones consist of social interactions and situations in which learning and teaching activities take place. The teaching context should provide students with an understanding of the content being learned, with students being clear about what they need to achieve and bringing them into a different,

preformative behavior, which is only possible in a context that includes that content (Biggs, 2001; Purković, 2016). It is actually about contextual learning and teaching (CTL). Contextual learning can be defined as a strategy to help students construct knowledge and meaning of new information through the complex interaction of teaching methods, content, situations, and time (Brown, 1998). Burns and Erickson (2001) view it as a concept that helps teachers establish subject-matter relationships with respect to real-life situations and motivates students to relate knowledge to application in their lives. Smith (2011), who states that contextual teaching and learning help teachers to connect the content of the subject with real situations, makes a similar definition. Johnson (2002) presents contextual learning and teaching as a holistic system that aims to help students see the meaning of the academic content they learn by connecting this content with the context of everyday life, that is, with the context of their personal, social and cultural circumstances. Contextual learning and teaching, as a concept that involves linking content and learning to the context in which such content will be used because of its significance for the learning process, other researchers also point out (Kelley and Kellam, 2009). Hudson and Whisler (2008) point out that this is a way of introducing diverse content and active learning techniques, designed to help students construct new knowledge from the analysis and synthesis of the learning process. Therefore, CTL is an innovative learning concept that can help students to connect learning with their life context, but also to connect their initial knowledge with new knowledge. It is one of the models of active learning where participants not only receive informations, but can also processed it by connecting it to a life context in order to acquire new knowledge (Kosassy et al., 2018). Such connection of content with meaningful context is realized by certain contextual approaches to teaching. Regarding general technology education, Purković and Bezjak (2015) include project-based teaching and learning, various forms of service learning, professional excursions, problem-based learning, anchored instructions, and isolated practical activities in contextual approaches. In all these approaches, the teaching context plays a key role, that is, it enables the student to understand the content and her / his personal development. A clear theoretical definition of contextual learning and approaches, and examples of good practice indicate contributions to student development, but research into the impact of such teaching on student achievement abounds with problems. The problem with the findings of such research, cited by Johnson (2002) or Parnell (2001), is most often that the effect of such teaching is explored as part of experimental situations that differ significantly from the reality in which teaching is performed. In real school conditions, learning and teaching usually take place decontextualized, based on predetermined curricula, which often deviates from the context of the student's life and application of knowledge in real-life situations. Therefore, the impact of the teaching context on student achievement needs to be explored as part of the actual educational reality, which requires a certain analysis of the context and contextual approaches that are actually applied in teaching. Given its specifics, teaching and learning technology abounds in specific elements of the teaching context and approaches, which were singled out by Purković (2016), and here they were used as a subject of analysis with regard to the teaching objectives. Therefore, the aim of this paper is to establish and argue the importance of specific elements of the context of teaching general technology education and, based on the analysis of the results of previous researches, to build a hierarchical structure of these elements. Such a structure will give certain elements priority over others in application in general technology education. With these arguments also seeks to influence educational policies, curriculum creators and ways of operationalizing the curriculums of general technology education. The ultimate goal is aimed at the appropriate achievement of the objectives of this teaching, as a segment of education that is extremely important for the development of each individual.

## 2. MATERIALS AND METHODS

The research was conducted as a qualitative analysis of the results of teachers' perception of the influence of the elements of the teaching context on the achievements of students in the teaching of the subject Technical Culture. This subject represents the Croatian version of general technology education, which has been implemented for 60 years with various changes (Purković et al., 2020). An analysis of two empirical studies of teachers' attitudes towards the influence of elements of the teaching context was conducted (Purković, 2016; Purković and Kovačević, 2020). The first study included a random sample of technical culture teachers (*N = 295*) and the second a stratified sample of teachers (*N = 194*). Elements of the teaching context and contextual approaches, singled out by Purković (2016), were used as independent variables in the analysis. In this sense, 12 elements that make up a typical context of technology education are singled out: field-trips, service learning activities, activities in appropriate space, use of models and simulations, use of videos and films, use of photos, drawings and schemes, use of books , textbooks, journals and texts, activities with learning materials, use of technical documentation, use of computers and ICT, activities with artifacts of technology and students' presentation of own results. At the same time, 24 achievements (teaching goals) were singled out as dependent variables for which the influence of the mentioned elements was analyzed. All three domains of achievement are covered, cognitive, psychomotor and affective, as well as goals specific to technology education. The cognitive domain consisted of knowledge, understanding, applied knowledge,

connecting with reality, application of knowledge from other fields and achievements in other subjects (transferability of knowledge), self-evaluation, and self-regulation of learning. The development of psychomotor skills and the ability to apply these skills in real situations are singled out for the psychomotor domain. The affective domain consisted of interest in technology, group collaboration, self-awareness, attitudes toward school and society, and the experience of work-social relationships. A special group of achievements included the adoption of rules of work and production, understanding the meaning of technology, conceptualization of technology, understanding the importance of work and production for the community, understanding the importance of technology education, understanding the importance of choosing a future profession, achieving excellence in technology, innovation and creativity. By analyzing and comparing assessments of the impact of contextual elements on student achievement, a hierarchical structure of teaching context priorities in general technology education was formed. By analyzing the characteristics of each individual element, groups of elements of the teaching context were formed, which were then implemented in the model of contextual learning and student development. In this way, a complete reflective cycle of contextual teaching and learning was obtained as the backbone of contextually organized teaching of technology.

## 3. RESULTS

To analyze the influence of contextual elements on student achievement, two empirical studies were used in which the same instrument was applied. The first research consists of teacher assessments of the importance of contextual elements for student achievement in the teaching of Technical Culture, which was examined by Purković (2016) for 24 achievements. The second research was conducted for achievements in the cognitive domain (Purković and Kovačević, 2020), and the results coincide with those from the previous research. The analysis found that the assessments of the impact of individual elements or groups of elements of the teaching context differ statistically significantly from each other and thus form groups of importance for student achievements. Roman numerals denote the levels that make up the contextual elements or groups of elements, with the designation "*I.*" being given to those with the highest importance for student achievements.

For achievements in the cognitive domain (Table 1) groups of elements are classified into four or five levels of importance. The first level of importance for six of the seven achievements highlighted activities with artifacts of technology, while for knowledge and understanding of content the importance of activities with models and simulations was noted. For self-regulation of learning, transferability of knowledge, and the ability to self-evaluate, the importance of students' presentation of their own work was emphasized.

***Table 1 Estimated importance for achievements in the cognitive domain***

| | ***Level*** | ***Contextual elements*** |
|---|---|---|
| ***Knowledge*** | *I.* | *Activities with models and simulations; activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; presentations of own activities; service learning activities; field-trips* |
| | *III.* | *Use of videos and films; activities with computers and ICT; activities with learning materials; use of photos, pictures and schemas* |
| | *IV.* | *Use of technical documentation; use of books, textbooks and journals* |
| ***Understanding*** | *I.* | *Activities with models and simulations; activities with artefacts of technology* |
| | *II.* | *Presentations of own activities; activities in appropriate spaces; service learning activities; field-trips* |
| | *III.* | *Use of videos and films; activities with computers and ICT; activities with learning materials; use of photos, pictures and schemas* |
| | *IV.* | *Use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Applied knowledge*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; service learning activities; activities with models and simulations; presentations of own activities* |
| | *III.* | *Field-trips* |
| | *IV.* | *Activities with computers and ICT; use of technical documentation; activities with learning materials; use of videos and films; use of photos, pictures and schemas* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Relating of knowledge*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities with models and simulations; presentations of own activities; field-trips; activities in appropriate spaces; service learning activities;* |
| | *III.* | *Use of videos and films* |

| | | |
|---|---|---|
| | *IV.* | *Activities with computers and ICT; activities with learning materials; use of photos, pictures and schemas; use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Transferability*** | *I.* | *Presentations of own activities; activities with artefacts of technology* |
| | *II.* | *Activities with models and simulations; activities in appropriate spaces; activities with computers and ICT; service learning activities* |
| | *III.* | *Field-trips; activities with learning materials* |
| | *IV.* | *Use of photos, pictures and schemas; use of videos and films; use of books, textbooks and journals; use of technical documentation* |
| ***Self-regulated learning*** | *I.* | *Presentations of own activities;* |
| | *II.* | *Activities with models and simulations; activities with artefacts of technology; activities in appropriate spaces; service learning activities* |
| | *III.* | *Activities with learning materials; activities with computers and ICT* |
| | *IV.* | *Field-trips; use of photos, pictures and schemas* |
| | *V.* | *Use of technical documentation; use of videos and films; use of books, textbooks and journals* |
| ***Self-evaluation*** | *I.* | *Presentations of own activities; activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; service learning activities; activities with models and simulations* |
| | *III.* | *Field-trips; activities with learning materials; activities with computers and ICT* |
| | *IV.* | *Use of technical documentation; use of photos, pictures and schemas; use of videos and films; use of books, textbooks and journals* |

Activities with textbooks, books, texts and magazines are included in the group of contextual elements that are least important for students' achievements from the teacher's point of view. Among other elements of the teaching context, the high importance of service learning, field trips, but also activities in appropriate spaces can be noticed. Other elements of the teaching context classified into middle or lower groups of importance for students' achievements in the cognitive domain.

When it comes to the influence of contextual elements on achievements in the psychomotor domain (Table 2), it was to be expected that teachers would attach the highest level of importance to the activities with artifacts of technology. The second level of importance usually consists of service learning activities, activities in appropriate spaces, but also student presentation of the results of their own activities. The use of books, textbooks, texts and journals can be convincingly classified as the lowest level of importance, while other elements of the teaching context can be considered medium or less important for students' achievements in the psychomotor domain.

For student achievements in the affective domain (Table 3), activities with artifacts of technology are present at the highest level of importance for all achievements. This level also includes student presentations of their own activities (for group cooperation and self-awareness development), service learning activities (for self-awareness and attitudes towards school and society), and activities in appropriate spaces (for students' attitudes towards school and society).

***Table 2 Estimated importance for achievements in the psychomotor domain***

| | ***Level*** | ***Contextual elements*** |
|---|---|---|
| ***Psychomotor skills*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Service learning activities; activities in appropriate spaces; activities with models and simulations; presentations of own activities* |
| | *III.* | *Use of technical documentation; field-trips; activities with learning materials; activities with computers and ICT; use of photos, pictures and schemas; use of videos and films* |
| | *IV.* | *Use of books, textbooks and journals* |
| ***Applied skills*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Service learning activities; activities in appropriate spaces; activities with models and simulations* |
| | *III.* | *Presentations of own activities; field-trips* |
| | *IV.* | *Activities with computers and ICT; use of technical documentation; activities with learning materials; use of videos and films; use of photos, pictures and schemas* |
| | *V.* | *Use of books, textbooks and journals* |

The lowest impact is again attributed to the use of books, textbooks, texts and journals for achievements in the affective domain. The group, which can also be considered a group of high importance, here can also include activities with models and simulations, activities with computers and ICT, and field trips. Other elements of the teaching context can be considered medium or less important for student achievements in the affective domain.

***Table 3 Estimated importance for achievements in the affective domain***

| | ***Level*** | ***Contextual elements*** |
|---|---|---|
| ***Interests*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; activities with models and simulations; service learning activities; field-trips; activities with computers and ICT; presentations of own activities* |
| | *III.* | *Use of videos and films* |
| | *IV.* | *Activities with learning materials; use of photos, pictures and schemas; use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Group collaboration*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Service learning activities; presentations of own activities; activities in appropriate spaces* |
| | *III.* | *Activities with models and simulations; field-trips* |
| | *IV.* | *Activities with learning materials; use of technical documentation; activities with computers and ICT; Use of videos and films; use of photos, pictures and schemas* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Self-awareness*** | *I.* | *Activities with artefacts of technology; presentations of own activities; service learning activities;* |
| | *II.* | *Activities in appropriate spaces; activities with models and simulations; field-trips* |
| | *III.* | *Activities with learning materials; use of technical documentation; activities with computers and ICT; use of videos and films; use of photos, pictures and schemas* |
| | *IV.* | *Use of books, textbooks and journals* |
| ***Attitudes towards school and society*** | *I.* | *Activities with artefacts of technology; activities in appropriate spaces* |
| | *II.* | *Presentations of own activities; service learning activities; activities with models and simulations* |
| | *III.* | *Field-trips; activities with computers and ICT* |
| | *IV.* | *Use of videos and films; activities with learning materials; use of photos, pictures and schemas* |
| | *V.* | *Use of technical documentation* |
| | *VI.* | *Use of books, textbooks and journals* |
| ***Work and social relations*** | *I.* | *Activities with artefacts of technology;* |
| | *II.* | *Service learning activities; activities in appropriate spaces; Field-trips* |
| | *III.* | *Presentations of own activities; activities with models and simulations* |
| | *IV.* | *Use of technical documentation* |
| | *V.* | *Use of videos and films; activities with learning materials; activities with computers and ICT* |
| | *VI.* | *Use of photos, pictures and schemas; use of books, textbooks and journals* |

The levels of importance of contextual elements for a particular group of achievements, which here refers to achievements that are mainly related to technology education, are shown in Table 4. Of the highest importance for all technological achievements, teachers exclusively assess the activities of students with artifacts of technology. Although this is somewhat expected, the differences in estimates of this element compared to all others are convincing and very consistent. The second level of importance, which can be considered a highly important group, includes service learning activities, activities in appropriate spaces, activities with models and simulations, presentations of own activities and field-trips. Activities with technical documentation are included in this group only for achievements related to the adoption of rules of work and production. The least important element is again the use of books, textbooks, texts and magazines, as well as the use of photographs, images and schemes for the development of work and social relations. Other elements of the teaching context can be considered medium or less important for specific technological student achievements.

***Table 4 Estimated importance for specific (technological) achievements***

| | ***Level*** | ***Contextual elements*** |
|---|---|---|
| ***Rules of work and production*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Service learning activities; activities in appropriate spaces; field-trips; activities with models and simulations; presentations of own activities; use of technical documentation* |
| | *III.* | *Use of videos and films; activities with learning materials; activities with computers and ICT; use of photos, pictures and schemas* |
| | *IV.* | *Use of books, textbooks and journals* |
| ***Meaning of technology*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities with models and simulations; Activities in appropriate spaces; service learning activities; presentations of own activities; field-trips* |
| | *III.* | *Use of videos and films* |
| | *IV.* | *Activities with computers and ICT; use of photos, pictures and schemas; activities with learning materials; use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Conceptualization of technology*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities with models and simulations; Activities in appropriate spaces; presentations of own activities; service learning activities; field-trips* |
| | *III.* | *Use of videos and films* |
| | *IV.* | *Activities with computers and ICT; use of photos, pictures and schemas; use of technical documentation; activities with learning materials* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Importance of technology for the community*** | *I.* | *Activities with artefacts of technology;* |
| | *II.* | *Service learning activities; Field-trips; activities in appropriate spaces* |
| | *III.* | *Presentations of own activities; activities with models and simulations* |
| | *IV.* | *Use of videos and films; use of technical documentation* |
| | *V.* | *Activities with computers and ICT; activities with learning materials; use of photos, pictures and schemas* |
| | *VI.* | *use of books, textbooks and journals* |
| ***Importance of technology education*** | *I.* | *Activities with artefacts of technology;* |
| | *II.* | *Activities in appropriate spaces* |
| | *III.* | *Service learning activities; activities with models and simulations; presentations of own activities; Field-trips* |
| | *IV.* | *Use of videos and films; activities with computers and ICT* |
| | *V.* | *Use of technical documentation; use of photos, pictures and schemas; activities with learning materials* |
| | *VI.* | *use of books, textbooks and journals* |
| ***Importance of future occupations*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Service learning activities; field-trips; activities in appropriate spaces; presentations of own activities; activities with models and simulations* |
| | *III.* | *Use of videos and films; activities with computers and ICT* |
| | *IV.* | *Use of technical documentation; activities with learning materials; use of photos, pictures and schemas* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Excellence in technology*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; presentations of own activities; activities with models and simulations; service learning activities* |
| | *III.* | *Field-trips; activities with computers and ICT* |
| | *IV.* | *Activities with learning materials; use of videos and films; use of photos, pictures and schemas; use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Innovation*** | *I.* | *Activities with artefacts of technology* |
| | *II.* | *Activities in appropriate spaces; service learning activities; activities with models and simulations; presentations of own activities* |
| | *III.* | *Field-trips; activities with computers and ICT* |
| | *IV.* | *Use of videos and films; use of photos, pictures and schemas; activities with learning materials; use of technical documentation* |
| | *V.* | *Use of books, textbooks and journals* |
| ***Creativity*** | *I.* | *Activities with artefacts of technology;* |
| | *II.* | *Activities in appropriate spaces; service learning activities; activities with models and* |

| | | |
|---|---|---|
| | | *simulations; presentations of own activities* |
| | *III.* | *Field-trips* |
| | *IV.* | *Activities with computers and ICT* |
| | *V.* | *Activities with learning materials; use of photos, pictures and schemas; use of technical documentation; use of videos and films;* |
| | *VI.* | *use of books, textbooks and journals* |

During further analysis, an attempt was made to determine the level of importance (L) of each individual contextual element for the overall student achievements. For the calculation, the average values of the assessments of each element (M), the levels of importance converted into numerical values (l) and the number of times a certain element had the highest importance for each student achievement (i) were taken into account. The level of importance was established by a simple calculation of L = (M * 23) + (l * i). In this way, symbolic values were assigned to each individual contextual element, which were used here to determine the hierarchical structure of the importance of contextual elements for student achievement (Figure 1). From such a hierarchical structure, activities with artifacts of technology are clearly distinguished, as convincingly the most important element of the teaching context for student achievements.. Furthermore, a group of elements of high or higher importance is singled out, which consists of activities with models and simulations, service learning activities, field-trips, student presentations of their own activities, activities in appropriate spaces and activities with computers and ICT. Less important elements include the use of videos and films, the use of technical documentation, activities with learning materials, the use of photos, images and schemes, and the use of books, textbooks and journals.

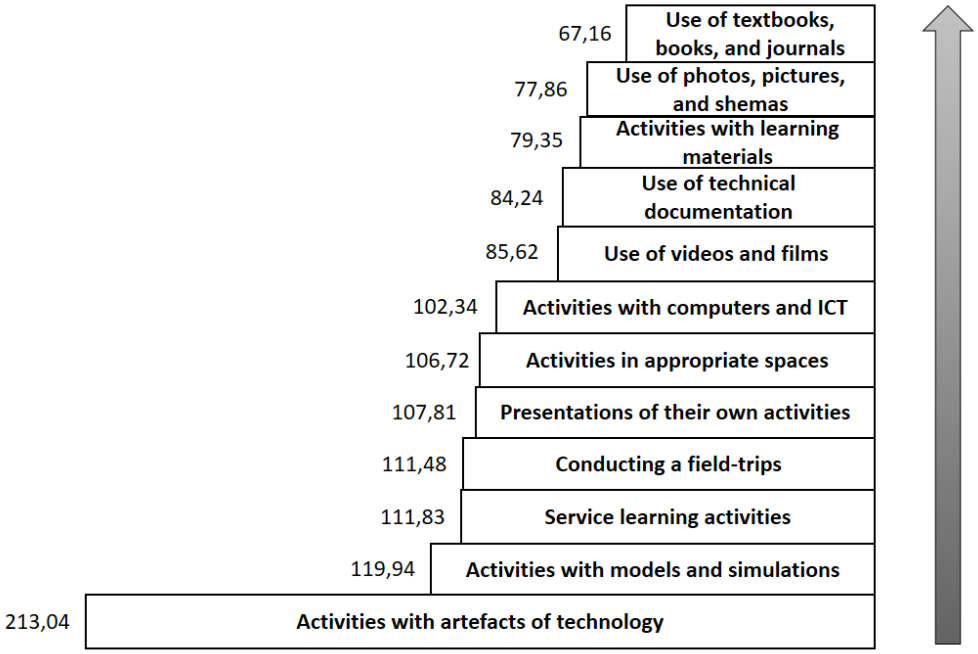


***Figure 1 Hierarchy of importance of elements of teaching context with symbolic contributions***

## 4. DISCUSSIONS

The analysis of the importance of selected elements of the teaching context shows how teachers perceive their importance in the process of achieving student achievements. However, each element does not have the same characteristics in terms of the possibility of implementation in the teaching process or the role in the learning process. Thus, for example, a suitable space cannot play an active role in the learning process, and field-trips cannot be conducted on a daily basis. Therefore, groups of elements of the teaching context can be singled out here, which can be classified into dominant activities, important periodic activities, dominant contextualization, and subject-specific and general contextualization. Given the results of research, the dominant activities may consist of activities with artifacts of technology, presentation of own results, activities with models and simulations, and conditionally activities with computers and ICT. Important periodic activities are certainly all service learning activities, but also

field-trips. The dominant contextualization can include activities in appropriate spaces, but also activities with computers and ICT. Subject-specific activities here include the use of technical documentation, the direct effect of which is not highly valued, but such activities are necessary in any technology education. The use of videos and films in teaching is subject-specific contextualization, because the macro context of technology often cannot be presented to students in any other way. All other elements of the teaching context can be considered as means for the general contextualization of content and activities in general technology education. By implementing such classified elements in the model of contextual learning and student development (Purković, 2016), a complete reflective cycle of contextual learning and teaching is obtained (Figure 2). This model at the macro and micro level shows the role and possibilities of implementing the elements of the teaching context in the learning process, which can facilitate the development and operationalization of the curriculum of technology education.

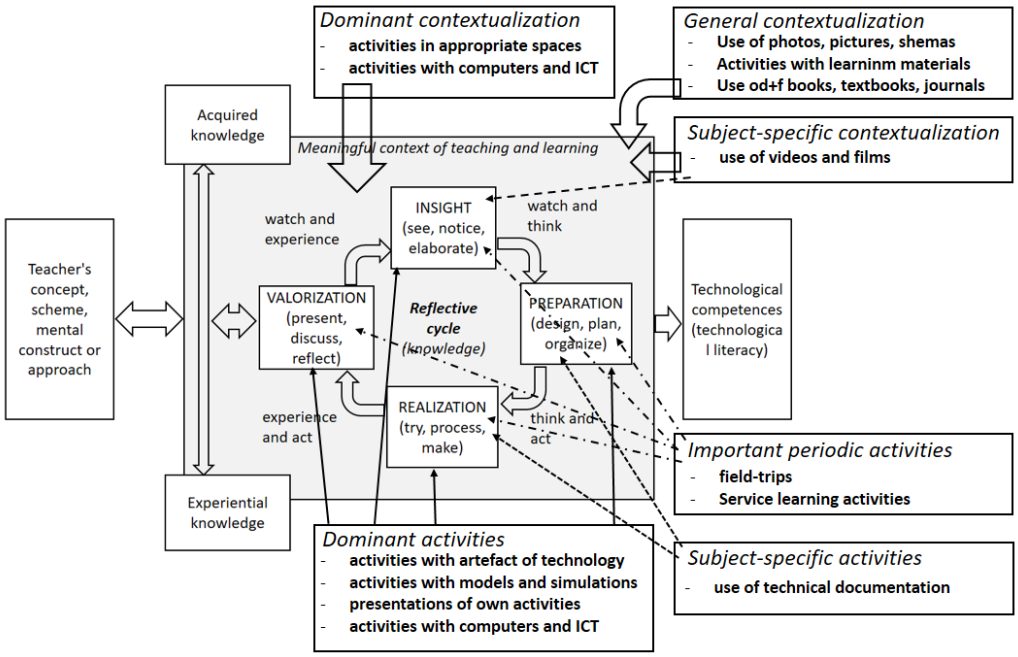


***Figure 2 A complete model of contextual learning and student development***

Despite such findings, it is worth noting that they are the result of teachers 'attitudes, not actual assessments of student achievements. However, the attitudes of teachers are not negligible and are often a relevant indicator of student and teaching performance, which is why they should be taken into account in the implementation of teaching and the development of technology education curricula. In addition, the completed model of contextual learning and student development cannot concretize the changing context of students' life, which is why the concretization of these elements will continue to remain the main job of teachers. Otherwise, it can turn into a "decontextualized dictate", if the contents and activities are imposed by the education authorities or politics.

## 5. CONCLUSIONS

The results of the analysis of the influence of the elements of the teaching context on the achievements of students' in general technology education indicate three separate groups or elements of importance. The activities of students with artifacts of technology undoubtedly form a separate and most important element of the teaching context, which seems irreplaceable in this teaching. The second group of importance consists of students' activities with models and simulations, service learning, field trips, and presentation of their own results. Given the assessed importance, such activities should certainly take place in appropriate spaces and often with computers and the use of ICT. Other elements of the teaching context can be considered as means for contextualizing of content and activities in technology education. Given the lowest estimated impact of books, textbooks and journals on student achievements, whose application in teaching is neither negligible nor unimportant, the cultural question arises how to make this element more significant from the point of view of students and modern teaching. This is obviously a problem of the crisis of the culture of reading and using books among the young generation, which was clearly pointed out here by the teachers.

The presented findings open a number of new issues and problems that need to be addressed in general technology education: from paradigmatic curriculum changes to the problems of implementing the appropriate context in the teaching process, but also the development of cultural values of young generations.

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