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Sketching – an Undervalued Tool in General Education

Māra Urdziņa-Deruma, Austra Celmiņa-Ķeirāne, Austra Avotiņa, Inguna Karlsone

University of Latvia, Latvia

ABSTRACT

Sketching is one of the key activities that characterise the process of visualising ideas in the creation of design products and artworks. Sketching skills are necessary to record observations. In addition, sketching can be used to capture new information. In the new State basic education standard of Latvia, sketching has a noticeable place in both design and technologies and art. The study aimed to investigate the role of sketching in the general education of students – future teachers of primary school education, future design and technologies teachers, and future designers. A survey (n = 126) was used to achieve the aim. The results show that sketching is to a greater extent and more diversely taught in visual arts than in home economics and technologies. Almost a fifth of the respondents (19%) did not learn sketching in visual arts, and almost half (48%) – in home economics and technologies. Most respondents consider that a sketch is a rough idea for a work, a draft of a work, and its main characteristic is quickness. 43% associate sketching with drawing techniques. Students use sketching most in free sketching situations and in generating ideas for visual artworks. Students sketch equally to record observations and stylize them as well as to visualize design product ideas. Most students emphasise that sketching needs to be practised, it is a way to visualise thoughts and ideas, and it stimulates creativity. Most students believe that sketching has an impact on the result of product design (both speed and quality), and they also stress that sketching ideas makes it easier to choose which idea to pursue.

Keywords: design and technologies education, drawing, idea visualization, sketch, visual arts education

Introduction

The research "Sketching – an undervalued tool in general education" has been developed at the Faculty of Education, Psychology and Art of the University of Latvia in the framework of the 2022 research project "Human, technologies and

quality of education". The study involves four researchers from the Department of Art and Technology and aims to develop criteria for assessing sketches and new study tasks in sketching to be integrated into the study courses at the University of Latvia. This article is devoted to the initial phase of the study.

This phase aimed to investigate the experience of students of study programmes "Teacher of Primary School Education", "Teacher of Design and Technologies", and "Art": their previous experience in sketching in general education, their sketching habits now and their perceptions of the usefulness of sketching. A survey was used to achieve the aim.

Sketching is one of the key activities that characterise the process of visualising ideas in the creation of design products and artworks (Buxton & Buxton, 2007; Sung et al., 2019; Ceylan & Soygenis, 2022). Sketching skills are necessary to record observations. In addition, sketching can be used to capture new information. In the new State basic education standard of Latvia, sketching has a noticeable place in both design and technologies, and arts. With the reform of general education in Latvia, learning to sketch has been included as an outcome in design and technologies education in grades 1–12 (Noteikumi par valsts pamatizglītības standartu un pamatizglītības programmu paraugiem Nr. 747 [Regulations regarding the state basic education standard and model basic education programmes No. 747], 2018; Noteikumi par valsts vispārējās vidējās izglītības standartu un vispārējās vidējās izglītības programmu paraugiem Nr. 416 [Regulations regarding the state general secondary education standard and model general secondary education programmes No. 416], 2019). This means that sketching skills are a must for future design teachers.

Sketch and sketching in general

To carry out the survey of students at the beginning of the research and to analyse the results of the questionnaire, a theoretical base was initially established by collecting materials explaining the definition of sketch and sketching. In dictionaries, the term 'sketch' is interpreted both as a small work of art that is the result of observation and experience and as a draft of a work of art. The dictionary of the Latvian literary language explains a sketch as an image in which the main features of an object or an impression, idea or conception are recorded in a generalised and non-detailed way (Latviešu literārās valodas vārdnīca [Dictionary of Latvian Literary Language], 1972–1996). The various explanations of the term also show two main types of sketches, which also mark the functions of sketches: observational sketches and sketches of ideas. "Sketches (...) record information, to remind one's self or to convey information and preserve it for others. They externalize internal thought, making it visible to self and others" (Heiser et al., 2004, p. 69). "A sketch has been defined as a preliminary,

rough representation without detail, usually rapidly executed to present only key elements of the design" (Pei et al., 2011, p. 67).

In several explanations of what a sketch is, it is closely related to a drawing. For example, Eckert et al. (2004) use the word 'sketch' in two related senses: (1) it is an informal drawing on paper with rough details, (2) it is a quick, informal, imprecise description in which details are tentative or missing. "Sketching, commonly defined as **'drawing'**, is an activity that all human beings are involved in on some level" (Ceylan & Soygenis, 2022, p. 325). "A sketch is quick and somewhat rough, not a finished **drawing**" (Pistone, 2002, pp. 25–26).

Dictionaries also suggest linking the term 'sketch' to specific techniques: drawing and painting. In dictionary explanations, a sketch is a rough, unfinished, undetailed, simply, or hastily executed drawing or painting (Oxford University Press, n. d.; American Heritage Dictionary of the English Language, 2016; Random House Kernerman Webster's College Dictionary, 2010).

When talking about sketching as a process, several authors note the impact of sketching on visual thinking. "Sketching is beneficial because it supports visual thinking. Visual thinking is a preferred cognitive strategy in design ..." (Goldschmidt, 2014, p. 445). "Sketches can be defined as supportive tools for the human brain's visualisation process of mental images" (Ceylan & Soygenis, 2022, p. 325).

Research also highlights that sketching is a way of communicating and generating ideas. Greenberg et al. (2011) point to several advantages of sketching in terms of quickly recording, visualising and comparing ideas, communicating, sharing and discussing them, choosing ideas worth pursuing, and using the results of sketching later. Finally, they mention the function of sketching as making the design process exciting and fun.

Types of sketches

As already mentioned, the definitions of sketch and sketching also include references to the types of sketches. One of the ways to divide them stems from whether the sketches relate to fine art or design. Another way to sort would be whether the sketches are the result of observation or the visualisation of an idea (Thurlow et al., 2019). If sketches are created to visualise ideas and to be easy to work with for the author and others, then one of the criteria for categorising sketches is what the sketches are created for.

When it comes to design product sketches, Pei et al. (2011) divide them into four groups depending on the purpose of the sketch, the user, and the detail of the sketch:

1) personal (idea, study, referential and memory sketches),
2) shared (coded and information sketches),
3) persuasive (renderings and inspiration sketches),
4) handover sketches.

If we recall, in several definitions of sketch it was mentioned that it is not detailed, however, the rendering sketches in group 3, according to the authors, represent the exact shape, colours, and tones of the product, while the sketches in group 4 are technical images containing information about the production. Therefore, there is a discrepancy between the sketch definitions and the established division.

Buxton and Buxton (2007) describe design sketches as quick, timely, cheap, disposable, multiple, with clear visual vocabulary, with specific features that distinguish them from other visual representations, with a sense of freedom, minimal detail, and ambiguity because they are open to interpretation.

Variety of materials and techniques used to create sketches

The study also focused on the techniques and materials that can be used for sketching. As can be seen from the definitions of sketching discussed above, sketching involves drawing or drawing and painting. Artists, designers, and art researchers suggest varying the sketching techniques. Kinard (2009) recommends the use of a soft sketching pencil, black-ink pen, and crayons. Cheney and McAllister (2013) point out that there is no right or wrong way to draw, suggesting different tools and grounds, combining techniques, using collage and all kinds of paper techniques. Meech (2009) also recommends the use of different papers, sketch pads, black-coated scrap-board, and a variety of dry and wet media: pencils, graphite sticks, erasers, charcoal, chalk pastels, oil pastels, etc. Leimanis (2021) also recommends the use of different coloured grounds and materials for sketches, looking separately at materials for the early construction phase (e.g., pencils, coloured pencils, grey markers, etc.) and materials for details and atmosphere in the final sketching phase (e.g., charcoal, erasers, pastels, Conté, ink, watercolour, etc.).

Brown (2013) points out that there are several ways to sketch design ideas, for example in clothing design. Besides free sketching, one option is to use a template of a garment shape as a base, another is to create collages, and yet another is to create 3-dimensional works by draping fabric on paper or a mannequin. Here again, there is a contradiction between some definitions of sketching, which relate sketching only to drawing and painting techniques, and the recommendations of practising designers for sketching.

Kinard (2009) recommends using sketchbooks to draw or post sketches and to take notes. Her suggestions for sketching are based on studying the natural or subject environment, using a window-tool to find compositions to sketch, or taking photographs.

Methodology

The study aimed to investigate the role of sketching in the general education of students – future teachers of primary school education, teachers of design and technologies and future designers. To achieve the research objective, four research questions were formulated:

RQ1: What is the sketching experience of students in visual arts and home economics and technologies in general education?

RQ2: What is students' understanding of what sketch and sketching are?

RQ3: How and what do respondents sketch daily?

RQ4: How do students understand the importance of sketching?

A survey with 28 questions was designed to achieve the research objective. 7 questions were designed to find out information about the respondents, 9 questions to find out the respondents' experience in sketching, 4 questions to find out what and how the respondents sketch daily, and 8 questions to find out the respondents' opinions and understanding of sketching. Mostly multiple-choice questions were used, 25 in total; 15 of them using a Likert scale with ranks from 1–5 (see Pipere, 2016). According to the recommendations (Geske & Grīnfelds, 2006), multiple-choice questions included the option "other answer". In addition, three open-ended questions; one to elicit general information about the respondents, and two to elicit the respondents' views on sketching. As recommended by Geske and Grīnfelds (2020), the questionnaire was first pre-field-tested and field-trial-tested, after which some questions were refined.

The survey was distributed electronically to professional bachelor study programme (PBSP) "Art" students, PBSP "Teacher of Design and Technologies" students and PBSP "Teacher of Primary School Education" students (for study years 1, 2, and 3 in the spring semester of the academic year 2021/22).

Student participation in the study was voluntary and the survey was anonymous. Following the principles and ethical aspects of data protection, informed consent was obtained from all participants. The data was used only in aggregate form. Answers to open-ended questions received codes.

The results of the survey were analysed quantitatively and qualitatively.

Characteristics of respondents

Electronic surveys were received from 126 respondents. All respondents are studying in professional bachelor study programmes. 53% of respondents are studying in the programme "Art": 38% to acquire the qualification of a graphic designer, and 15% – the qualification of an interior designer. 47% of respondents are studying to be teachers: 29% for primary education teachers, and 18% for design and technologies teachers (see Figure 1). The largest number of respondents are 2nd-semester students (64%), followed by 4th-semester students (19%) and 6th-semester students (17%). The respondents obtained their secondary

education in various regions and localities of Latvia. 40% of respondents received their secondary education in Riga, 25% in Vidzeme, 21% in Zemgale, 9% in Kurzeme and 5% in Latgale. 39% studied in small towns, 16% in big cities, and 5% in rural areas.

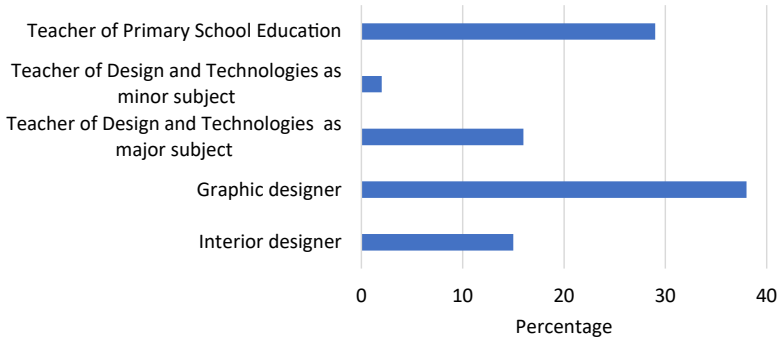

Figure 1. Respondents' study programmes (*n* =126)

In addition to secondary education, many respondents also had additional education, both formal and informal. 30% of respondents have attended an interest education programme related to visual arts, 21% of respondents have attended a vocational art school, 14% of respondents have taken courses, and 13% have studied in art studios. However, it should be noted that a significant number of respondents (37%) have not received additional education (see Figure 2).

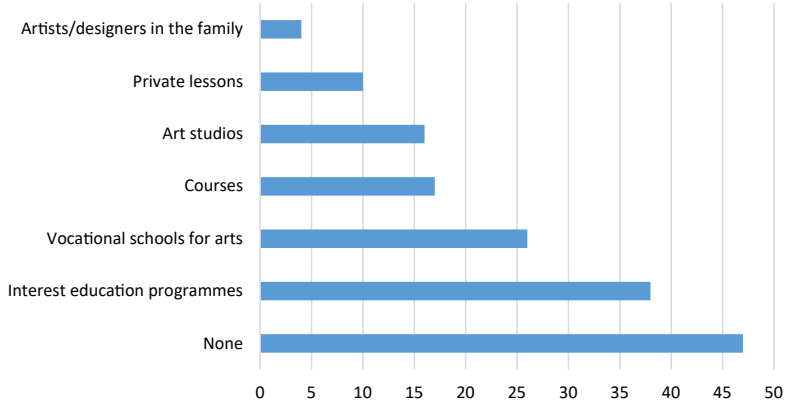

Figure 2. Additional education of respondents

Results

RQ1: What is the sketching experience of students in visual arts and home economics and technologies in general education?

Given that sketching is a compulsory skill in the new curriculum, it is important to find out about students' experiences. A total of 17% have sketched often or very often in visual arts, and 30% sometimes. Almost a fifth of respondents (19%) have not sketched at all in visual arts (see Figure 3).

Compared to sketching in visual arts, sketching is less frequently taught in lessons on home economics and technologies. Only 10 respondents, or 8%, say they have learnt it often or very often, while 48%, or almost half, have not learnt sketching at all in these lessons (see Figure 3). This means that sketching needs to be given a special place in design and technologies teaching methodologies, as some future teachers do not have this experience themselves.

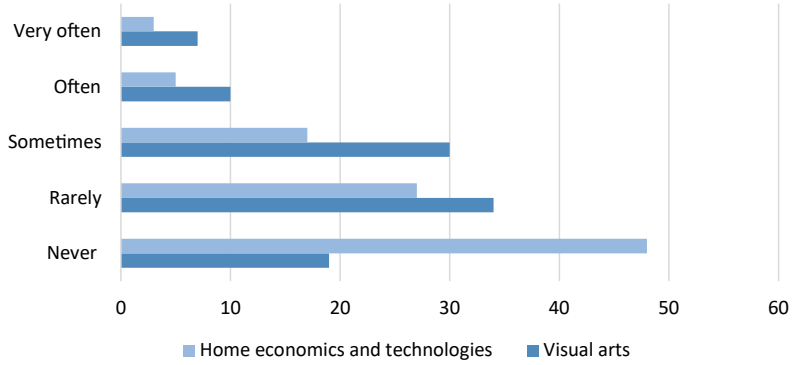

Figure 3. Frequency of sketching in visual arts and home economics and technologies (n = 126)

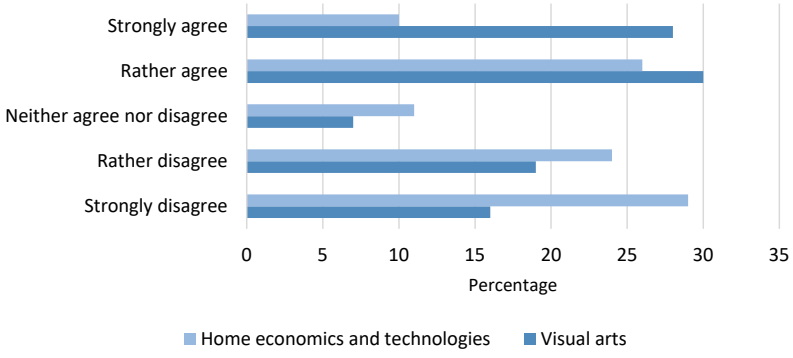

Figure 4. Variety of graphic materials in visual arts and home economics and technologies (n = 126)

For a more varied sketching experience, it is recommended to use different graphic materials and grounds. 58% of respondents have experienced using a variety of graphic materials for sketching in the visual arts, while 35% have not used a variety of graphic materials. In home economics and technologies, only 36% of respondents have used different graphic materials for sketching, while 53% have not (see Figure 4). This implies that the variety of graphic materials, especially in design and technologies teaching methodologies, also needs to be addressed in the study process. The responses show that a variety of sketching grounds is used comparatively less than a variety of graphic materials. In the visual arts, 38% of respondents indicate that they have used a variety of sketching grounds, while 52% have not. In home economics and technologies, 27% of respondents have used a variety of grounds, while 63% have not.

In addition, only 28% of respondents say they have studied artists' sketches in visual arts, while 24% have studied artists'/designers' sketches in home economics and technologies.

RQ2: What is students' understanding of what sketch and sketching are?

In response to the open question "What is a sketch?", most respondents (60%) consider a sketch to be a rough draft (see Figure 5), e.g., S22 writes that "a sketch is a draft of the real work." In addition, just over half of the respondents (52%) write that a characteristic of a sketch is that it is quickly done. For example, DT13 writes that it is "a quick implementation of ideas on paper." 43% associate sketching with drawing techniques. For example, S14 defines a sketch as a drawing "from which a work of art is made." Respondent M61 writes: "A sketch is a quick drawing." 21% of respondents associate sketching with sketching an idea, e.g., DT12 writes that a sketch is "a representation of your idea on paper." 12% of respondents associate sketching with sketching subjects/objects. M61 thinks that "a sketch is a draft of things, objects or people, mostly of a small size."

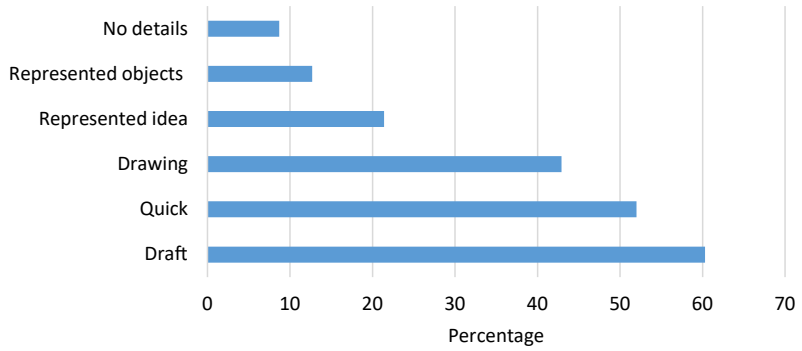

Figure 5. The most common answers to the question "What is a sketch?" (n = 126)

Only a few respondents mention specific materials (pencils, felt-tip pens, etc.) (5%) and the means of expression (8%) used in the sketch, including line, colour, proportion, silhouette, shape, etc. For example, M15 describes a sketch as a drawing "in pencil/felt-tip pen/drawing pen." M25 writes: "A sketch is a rough draft of a drawing made over a short period, in which the shape, proportions, composition and, in some cases, shadow/lighting can be determined."

The majority of respondents believe that there are differences between sketching by hand and sketching digitally, with 61% saying definitely yes and 26% saying rather yes (see Figure 6).

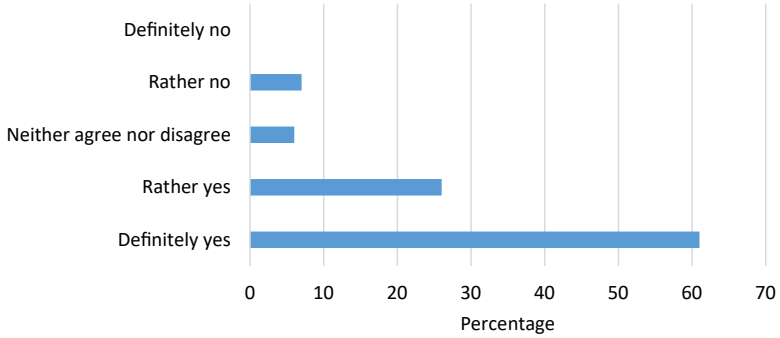

Figure 6. Differences between sketching by hand and digitally as perceived by respondents (n = 126)

RQ3: How and what do respondents sketch daily?

Most respondents sketch by hand (96%) in their daily lives, while 2/3 of all respondents sketch digitally (66%). 37% of respondents sketch by hand often or very often, and 11% of respondents sketch digitally often or very often (see Figure 7). Sketch notebook has been used by 2/3 of respondents.

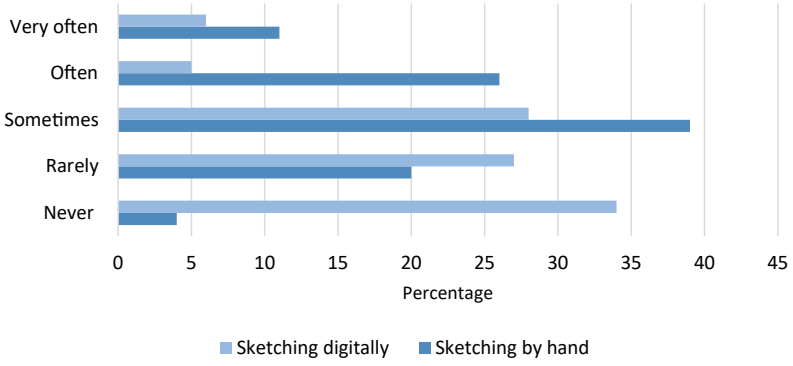

Figure 7. Frequency of sketching by hand and digitally in respondents' daily life

When asked what they sketch, many respondents (73%) tick the option "free sketching in different situations". A large majority of respondents (65%) sketch to visualise ideas for artworks. Just under half of respondents sketch to explore nature and the subject environment, and to create sketches for different products. 39% study the artworks – stylising them or making creative compositions, and 33% sketch artworks to copy them. 31% of respondents sketch connections while listening to a text. A relatively small proportion of respondents (18%) sketch on a template provided (see Figure 8).

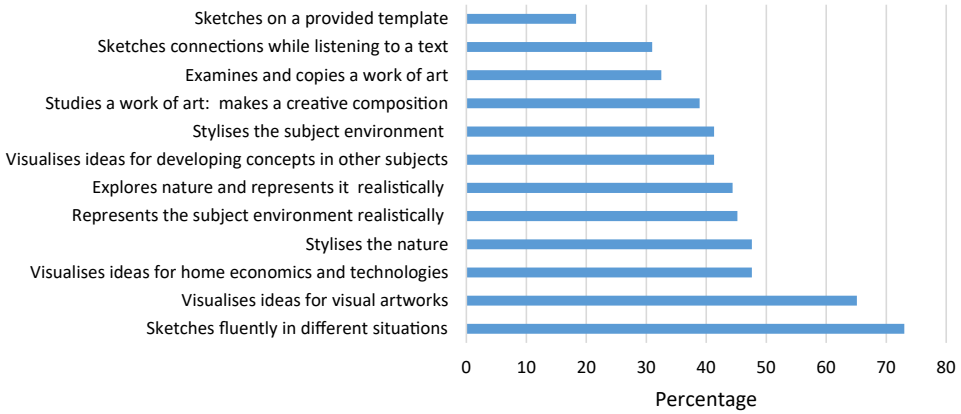

Figure 8. What do students sketch daily? (n = 126)

Most respondents produce monochrome sketches (92%) in a single technique (63%). In contrast, polychrome sketches (45%), as well as sketches in several techniques (44%), are made by slightly less than half of the respondents.

Most respondents sketch design products to visualise ideas (88%), slightly fewer students sketch to choose between several ideas (75%), and 65% sketch to experiment. This suggests that in the study process more attention should be paid to experimental sketching and the possibility of variations in sketches.

RQ4: How do students understand the importance of sketching?

Students' motivation and understanding of the worth of sketching are important. A convincing majority of respondents agree (77% strongly agree and 21% rather agree) that it is necessary to learn to sketch by hand to be able to visualise their ideas. Similarly, the majority of respondents rate sketching as something to learn to be able to record their observations (69% strongly agree and 26% rather agree).

Most respondents (around 3/4) agree that the amount of work put into sketching determines both the overall quality of the design product and the speed with which a design product can be produced. 17% of respondents neither agree nor disagree that the amount of work put into the sketch depends on the quality of the overall design product. 15% of respondents neither agree nor disagree that the amount of work invested in the sketch depends on the speed with which a design product can be produced. This means that it is necessary to think about how to motivate students to sketch design products.

86% of respondents answered the question "What would you like to add about sketching by hand?" (see Figure 9), which shows that respondents are not indifferent to sketching.

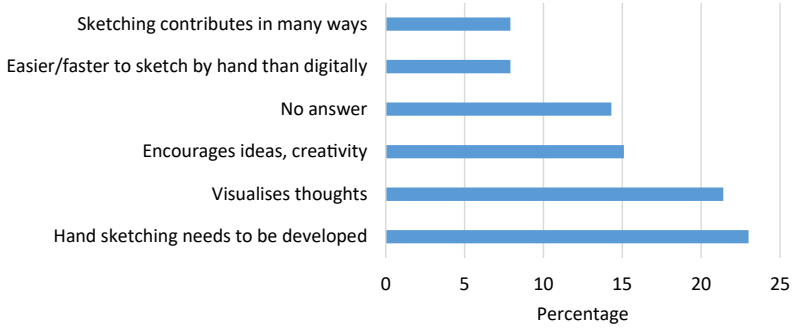

Figure 9. What would respondents like to add about sketching by hand? (n = 126)

23% express the opinion that sketching skills need to be developed, e.g., respondent DT5 writes: "I think sketching skills should be compulsory at school as part of design thinking." 21% of the respondents to this question think that sketching is useful for visualising ideas. For example, respondent M32 points out that sketches "help to visualise and plan ideas." 15% emphasise that sketching generates new ideas. For example, respondent M12 says: "Sketching gives ideas that don't just come to mind." 13% of respondents associate sketching with sketching objects or the environment, e.g., M8 indicates: "A quick sketch of an object/landscape etc. A drawing that includes the main details. 1–10 min." 8% of respondents believe that sketching contributes in many ways to personal development, including the development of thinking and memory. For example, respondent DT9 writes: "Developing drawing/sketching skills makes people more creative, better able to structure their ideas and thinking, better able to explain them to others, and better able to accentuate key and secondary details."

8% of respondents say it is faster and easier to sketch by hand. For example, respondent M42 thinks that sketching by hand "is a faster way to work than

doing it digitally." 2% of respondents stress the opposite view. Respondent M7 writes: "I like [sketching] with digital tools better than by hand because of the ability to erase."

Discussion

The results of the survey show that the students have different sketching experience, which was gained in the general education school. In general, there has been a greater variety of sketching tasks (different graphic materials used and different grounds for sketching) in visual arts than in home economics and technologies. However, 35% of respondents in visual arts also did not have a variety of materials for sketching and 7% neither agreed nor disagreed with this. This is directly related to respondents' understanding of sketching, as when defining a sketch, 43% of respondents associate sketching with drawing techniques. This is also in line with the understanding of the term 'sketch' proposed by several authors (Ceylan & Soygenis, 2022; Pistone, 2002).

Students consider that there is a significant difference between sketching by hand and sketching digitally, with a higher percentage of students using sketching by hand. The highest percentage of students sketch freely in different situations. 31% of respondents sketch commonalities while listening to a text, this supports research that 1/3 of people are strongly visual-spatial (Silverman, 2002). There is a noticeable correlation between the fact that more students have learned sketching in the visual arts, as more respondents use sketching for visualising ideas for artwork than for visualising ideas for design products. Students' previous experience can also be related to the fact that a higher percentage of students appreciate the need to sketch to visualise ideas and record observations than the effort put into sketching design product ideas to influence the overall quality and development speed of the design product.

23% of students especially appreciate the need to learn to sketch and emphasize it when answering the question of what else they want to add. The results of the research show that it is necessary to pay more attention to sketching in the university for future designers and design and technologies educators. It is especially necessary to pay attention to the variety of sketches (the variety of techniques and materials used) and to create tasks that focus on both observation and idea sketching, as well as experimentation in the sketching process.

The results of the study cannot be generalized due to the small number of respondents, but they are valuable for future studies on learning sketching in the study process.

Conclusions

The study answered all four research questions.

Regarding RQ1 on students' previous experience, the study showed that respondents have different sketching experiences before their university studies, which calls for a differentiated approach at university. The sketching experience has been influenced by both the comprehensive school and additional educational opportunities.

In general education, respondents have sketched more frequently and differently in visual arts than in home economics and technologies. This is because sketching has been traditionally more associated with visual arts than with product design.

When the term 'sketch' is defined, it is often associated with drawing, and this is also reflected in many students' understandings of what sketch and sketching are (RQ2). Books written by artists and designers, on the other hand, offer a wide range of materials and techniques to use. This means that students need to be shown a variety of possibilities, including the possibility of creating sketches in appliqué, collage, painting, and other techniques.

Responses related to the RQ3 about students' daily sketching habits show that sketching by hand plays an important role in respondents' creative and professional self-expression. This is shown by the respondents' attitude towards the survey: even when answering the question allowing for non-response, 86% of the students submitted answers. Most respondents sketch freehand in different situations and visualise ideas for visual artworks, which is directly related to the fact that at school sketching is taught more in visual arts than in home economics and technologies. 37% of respondents sketch by hand often or very often, 39% sometimes, 4% never and the rest rarely. Overall, respondents sketch more often by hand than digitally.

Respondents appreciate the importance of sketching (RQ4), as almost all agree with the statement that sketching is necessary to visualise ideas and record observations. In response to the question "What else would you like to add?" 23% say that sketching needs to be developed.

Overall, the results show that the role of sketching in general education has been undervalued. New educational standards in Latvia and curriculum reforms have changed the official framework, but the teaching of sketching skills in each school will depend on individual teachers. Therefore, preparing future teachers for a fulfilling job is a very important motivation for changes in the content of university curricula. The study revealed key aspects that need attention when designing and developing new tasks for teaching sketching. It should be noted that the role of sketching in the professional activities of future graphic and interior designers will not diminish either. Techniques and tools may change, but the need to visualise ideas will not disappear.

Aknowledgment

The article is developed in the framework of the 2022 research project "Human, Technologies and Quality of Education" of the University of Latvia, Faculty of Education, Psychology and Art.

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About the authors

Māra Urdziņa-Deruma – Dr. paed., associate professor at the University of Latvia Faculty of Education, Psychology and Art (FEPA).

Scientific interests: textile education, design and technologies education, arts pedagogy.

She developed and taught courses in design and technologies and its teaching methodologies, and art pedagogy in various teacher education programmes of bachelor, first- and second-level teacher education programmes. Since 1996, she organised National Olympiades (total of 8) and Open Olympiades (total of 16) in home economics and design and technologies.

Austra Celmiņa-Ķeirāne – Dr. philol., Mg. art., assistant professor at the University of Latvia FEPA. She has been working at the University of Latvia since 2008. Since 2016, she has been the director of the study program "Art", but since 2020 – the head of the study field "Arts" of the UL.

Interior and graphic designers are taught study courses Drawing I–VII, Painting I–V, Composition in Design I–IV, Plein Air I, II.
She works in the field of textile art and is a member of the Latvian Artists Union and the Latvian Textile Art Association.

Austra Avotina – Dr. paed., associate professor at the University of Latvia FEPA.
She is a researcher in art education, an author of monographs, study books and articles, and participated in international projects as an expert: e.g., ESFP – Development of visual art teachers professional and pedagogical competence; the Implementing competency-based curriculum project in Latvia (Skola2030) and represented interests of the University of Latvia in European Network of Observatories in the Field of Arts and Cultural Education linked to UNESCO (ENO).

Inguna Karlsone – Dr. paed., Mg. arch., assistant professor at the University of Latvia FEPA.
Scientific interests: architecture, design, design education, pedagogy, spatial reasoning.
She works at the University of Latvia since 2008 in the professional bachelor's study programme "Art"; since 2020 in the professional bachelor's study programme "Teacher" and the master's study programme "Technology Innovation and Design for Education". During this period, the study courses Basics of Architecture, Universal Design, Universal Design in Education, and Environment Design have been developed and taught.