ARCHITECTURE'S AFTERLIFE

AFTERLIFE REPORTS

Royal College of Art

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KU LEUVEN faculty of architecture

Funded by the Erasmus+ Programme of the European Union

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http://architectures-afterlife.com/

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EXECUTIVE SUMMARY

‘Architecture's Afterlife: The Multi-Sector Impact of an Architectural Qualification’ is an Erasmus+ funded research enquiry that took place between 2019 and 2022. It conducted an EU-wide survey to determine the multi-sector destination of architecture graduates who chose not to work as architects. The study confirmed that architecture graduates occupy only slightly above average results in working in their discipline professionally, compared to the median position of graduates working in a field outside their original area of study (38% of architecture respondents in comparison to an average 46% across all disciplines), and could therefore generate insights relevant to all disciplines. The study mapped the extent to which architecture graduates are migrating into other sectors and analysed migration flows. It confirmed the results of the pre-application study which discovered that 40% of architecture graduates did not engage in architectural practice, but also differentiated between the sectors those ‘not in practice’ engage in. 21% of these combine practice with another occupation, 10% work in the creative industries other than architecture, and 7% have migrated into an unrelated sector. Skills mapping affirmed that there is strong correlation between multi-sector migration and transversal skills, with the majority skills listed in order of utility/transposability. The results of the study also identified the industries architecture graduates are migrating towards which resulted in the definition of four distinct flows, focussing on architectural graduates who: (1) Work ‘in practice’, (2) Combine practice with other activities’, (3) Work ‘in sectors related to architecture, (4) Work in sectors unrelated to architecture.

The qualitative part of the study, consisting in 49 in-depth interviews, distinguished specific differences which the project has brought into discussion in relation to educational and cultural contexts. This part of the study arrived at a dataset showing that the most transversal, multi-sectoral skills are not explicitly taught within degree programs, but rather learned through the specific educational process, and often characterised as ‘soft’ and ‘emotional’.

The study led to the conclusion that, in addition to skills and competences, the architecture graduates reveal a certain behaviour – mindset and modus operandi – that allows them to develop new professions or to work in completely unrelated sectors where they contribute their architectural skills. Architecture education has been positioned as a foundation program for a whole range of sectors as well as professions not yet existing. Skills not taught but learned (behaviours, or soft, emotional skills) show to be the most needed and transferrable both in architecture and other sectors; a crucial asset for diverse employability. The discussions of the quantitative and qualitative findings during Multiplier events and other presentations highlighted the importance of the range of skills and competences in architecture to remain broad and diverse. The study provides some first insights and pleas for HE institutions to structurally track the trajectories of their graduates and for the need to support the breaking of silo recruitment tendencies. Both in architecture and other sectors the study pleads for a shared learning responsibility between schools and industry allowing architecture education to remain broad and multi-sector applicable.

The projects key findings provide the background for the Architecture's Afterlife White Paper (available at http://architectures-afterlife.com/en/outputs?q=64)

The findings contribute towards a growing number of EU and international studies that concern the need for graduates from all disciplines to address skills shortages by learning ‘transversal skills’ – such as communication, team-working, customer interactions, problem solving, learning, planning and organisation. Transversal skills allow forms of multi-sector mobility that ensure graduates can adapt and respond to threats and opportunities in the employment market such as the rise of artificial intelligence or ecological crises. The study’s findings help to define what skills the most tenacious, adaptive, entrepreneurial and global graduates are using within roles outside of their degree discipline, too.

This Report is one of the project’s Intellectual outputs (IO2) stemming from the researches Work Package 4, and describes the final findings of the research. It provides a methodological introduction, as well as a description of the flows on which the research is grounded and a narrative connecting the various subreports written within Work Package 4. The Report is structured through seven chapters corresponding to the impact on the different targets of the project.

RÉSUMÉ ANALYTIQUE

La vie après la mort de l'architecture : L'impact multisectoriel d'une qualification en architecture" est une enquête de recherche financée par Erasmus+ qui s'est déroulée entre 2019 et 2022. Elle a mené une enquête à l'échelle de l'UE pour déterminer la destination multisectorielle des diplômés en architecture qui ont choisi de ne pas travailler en tant qu'architectes. L'étude a confirmé que les diplômés en architecture n'occupent que des résultats légèrement supérieurs à la moyenne en travaillant professionnellement dans leur discipline, par rapport à la position médiane des diplômés travaillant dans un domaine en dehors de leur domaine d'étude initial (38% des répondants en architecture par rapport à une moyenne de 46% dans toutes les disciplines), et pourrait donc générer des idées pertinentes pour toutes les disciplines. L'étude a permis de déterminer dans quelle mesure les diplômés en architecture migrent vers d'autres secteurs et d'analyser les flux migratoires. Elle a confirmé les résultats de l'étude de pré-candidature qui a révélé que 40% des diplômés en architecture n'exerçaient pas la profession d'architecte, mais a également différencié les secteurs dans lesquels ces " non praticiens " exercent. 21% d'entre eux combinent l'exercice de la profession avec une autre occupation, 10% travaillent dans les industries créatives autres que l'architecture, et 7% ont migré vers un secteur sans rapport avec l'architecture. La cartographie des compétences a confirmé qu'il existe une forte corrélation entre la migration multisectorielle et les compétences transversales, les compétences majoritaires étant classées par ordre d'utilité/transposabilité. Les résultats de l'étude ont également identifié les industries vers lesquelles les diplômés en architecture migrent, ce qui a permis de définir quatre flux distincts, en se concentrant sur les diplômés en architecture qui : (1) travaillent "en pratique", (2) combinent la pratique avec d'autres activités, (3) travaillent "dans des secteurs liés à l'architecture, (4) travaillent dans des secteurs non liés à l'architecture.
La partie qualitative de l'étude, qui consiste en 49 entretiens approfondis, a permis de distinguer des différences spécifiques que le projet a mis en discussion par rapport aux contextes éducatifs et culturels. Cette partie de l'étude a abouti à un ensemble de données montrant que les compétences les plus transversales et multisectorielles ne sont pas explicitement enseignées dans les programmes d'études, mais plutôt apprises à travers le processus éducatif spécifique, et souvent caractérisées comme " douces " et " émotionnelles ".
L'étude a permis de conclure qu'en plus des aptitudes et des compétences, les diplômés en architecture révèlent un certain comportement - un état d'esprit et un modus operandi - qui leur permet de développer de nouvelles professions ou de travailler dans des secteurs complètement différents où ils apportent leurs compétences architecturales. L'enseignement de l'architecture a été positionné comme un programme de base pour toute une série de secteurs ainsi que pour des professions qui n'existent pas encore. Les compétences non enseignées mais apprises (comportements, ou compétences douces, émotionnelles) s'avèrent être les plus nécessaires et les plus transférables, tant en architecture que dans d'autres secteurs ; un atout crucial pour une employabilité diversifiée. Les discussions sur les résultats quantitatifs et qualitatifs lors des événements Multiplier et d'autres présentations ont mis en évidence l'importance de la gamme des aptitudes et des compétences dans l'architecture pour qu'elle reste large et diversifiée. L'étude fournit quelques premières indications et plaide pour que les établissements d'enseignement supérieur suivent structurellement les trajectoires de leurs diplômés et pour qu'ils soutiennent la rupture des tendances de recrutement en silos. En architecture comme dans d'autres secteurs, l'étude plaide pour une responsabilité d'apprentissage partagée entre les écoles et l'industrie, permettant à l'enseignement de l'architecture de rester large et multisectoriel.
Les principales conclusions du projet servent de base au livre blanc "Architecture's Afterlife" (disponible à l'adresse suivante : http://architectures-afterlife.com/en/outputs?q=64).
Les résultats contribuent à un nombre croissant d'études européennes et internationales concernant la nécessité pour les diplômés de toutes les disciplines de remédier aux pénuries de compétences en acquérant des "compétences transversales" - telles que la communication, le travail en équipe, les interactions avec les clients, la résolution de problèmes, l'apprentissage, la planification et l'organisation. Les compétences transversales permettent des formes de mobilité multisectorielle qui garantissent que les diplômés peuvent s'adapter et répondre aux menaces et aux opportunités du marché de l'emploi, telles que l'essor de l'intelligence artificielle ou les crises écologiques. Les résultats de l'étude aident à définir les compétences que les diplômés les plus tenaces, les plus adaptatifs, les plus entreprenants et les plus globaux utilisent également dans des rôles extérieurs à leur discipline d'études.
Ce rapport est l'un des résultats intellectuels du projet (IO2) découlant du work package 4 de la recherche, et décrit les conclusions finales de la recherche. Il fournit une introduction méthodologique, ainsi qu'une description des flux sur lesquels la recherche est fondée et une narration reliant les différents sous-rapports rédigés dans le cadre du Work Package 4. Le rapport est structuré en sept chapitres correspondant à l'impact sur les différentes cibles du projet.

INTRODUCTION

The Erasmus+ Strategic Partnership research project Architecture's Afterlife' principal aim is to identify the multi-sector impact of an architecture degree within the context of Europe and the extent to which competences taught to architecture students are needed in other sectors. The study seeked to understand the skills gaps and mismatches between (1) what is taught in architecture schools and what is needed by today's architecture practices (2) what is taught in architecture schools and what turns out to be very useful for architects whose trajectory leads them beyond architecture and construction in order to identify opportunities for a transdisciplinary curriculum that could more effectively serve student, labour market and societal needs.

Although it is possible to quantitatively interrogate the programs, curricula, skills, and knowledge that architecture schools transmit to their students (verifying the relationship that these skills and abilities have with experience in multiple professional practices), if we want to define, describe and verify the starting hypotheses of this study this level of investigation is insufficient: it is necessary to perform in parallel also a qualitative analysis that allows us to compare, not only the contents but also the methods of knowledge transmission, investigating the experiential component.

The survey provided quantitative data, but limited the possibilities for response in terms of competences. A first limitation of the survey consists in the survey's questions about skills and competences more acquired during the studies and the ones more used in the professional activities which could be answered only through a limited list. Responses clearly concentrated on some of them suggesting to look for more detailed analysis. A second limitation of the survey consists in the type of professional occupation in which the graduates were employed as the survey only proposed four choices (architecture, related field, non related, and combined occupation). To fill this gap, interviews were essential in better defining the professional context not only concerning the field not related to architecture but also to better define the multiple types of employment existing in the field of architecture. On a more general level interviews also provided more details on what and how learning takes place, which specific skills are most in demand, in what context they are used. The questionnaire on which the interviews were based and the list of questions of the survey are annexed to this document. For each Flow the interview was adapted in order to get more specific information.

In this sense, the methodology pursued in Architecture's Afterlife research moves on both levels by attempting to figure out which kind of tools to use to make the two types of analysis and investigation feed off each other, allowing for a better focus, directing the investigation itself but also for systematising, organising and comparing the data that emerge from time to time.

Thus, the study works introducing a progressive approach in which the definition of research tools, thematic organisation, and problem framing was subject to successive moments of focusing, adjusting, correcting, and redirecting in a process in which the results progressively extracted from the quantitative investigation also influenced and redefined the subsequent conceptual and qualitative insights and elaborations.

Concretely, the methodological tools used can be grouped into two sets: on the one hand, the development and distribution of a survey (The Architecture's Afterlife Questionnaire) and the conduct of in-depth interviews, and on the other hand, the setting up of a complementary level of discussion with different groups of experts, academics and professionals through Multiplier Events.

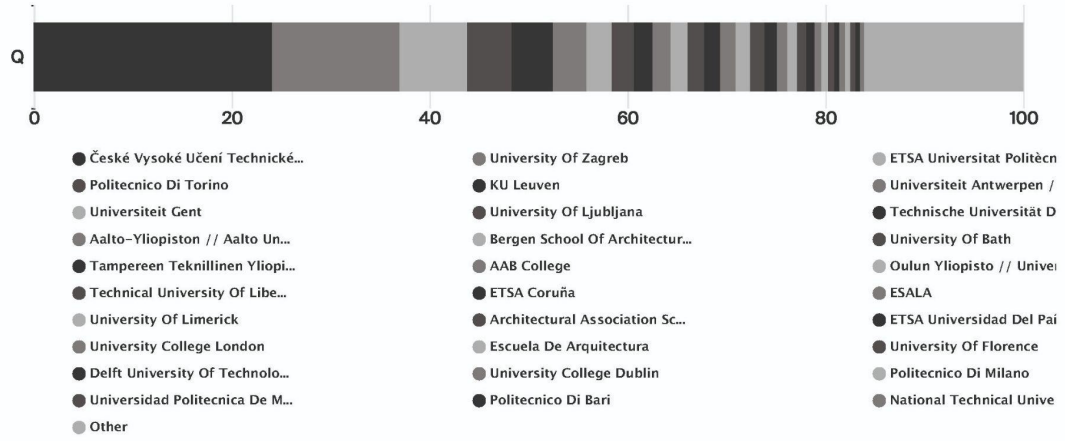
SURVEY

The survey was distributed to European 379 architecture schools addressing whether the head of department, the administrative office or the alumni association when available.
The survey was also distributed to more than 30 professional organisations potentially concerned in employing graduates in architecture such as creative industries, construction industries and commerce chambers. The six major European networks of Architecture (ACE, EASA, ARCC, UIA, SCHOSA, ARENA) as well as ACSA have been involved in spreading the survey.

Distribution has been expanded through requests for collaboration with institutions, professional orders, and boards throughout Europe, which have disseminated and published the questionnaire by expanding the initiative's reach through their communication channels. At the end of the project the survey had 2637 participants currently residing in 65 countries (with 95,3% of the respondents coming from 32 European countries), 56% of the participants are female, 43 % are male. Participant were coming from 171 different schools (graduation) yet only 17 schools had more than 20 participants.

1628 examinees selected from total of 2637 using filter on selected 1 questions.

14. Institution grad - What was the name of the institution or university where you graduated in architecture?If the name your institution is not in the list, please write down the name in the text box below.



24.08%	392	České vysoké učení technické v Praze // Czech Technical University in Prague
12.90%	210	University of Zagreb
06.82%	111	ETSA Universitat Politècnica de València (UPV)
04.48%	73	Politecnico di Torino
04.18%	68	KU Leuven
03.38%	55	Universiteit Antwerpen / University of Antwerp
02.58%	42	Universiteit Gent
02.21%	36	University of Ljubljana
01.90%	31	Technische Universität Dresden
01.84%	30	Aalto-yliopiston // Aalto University
01.72%	28	Bergen School of Architecture
01.66%	27	University of Bath
01.60%	26	Tampereen teknillinen yliopiston // Tampere University of Technology
01.60%	26	AAB College
01.47%	24	Oulun Yliopisto // University of Oulu
01.41%	23	Technical University of Liberec
01.29%	21	ETSA Coruña
01.04%	17	ESALA
00.98%	16	University of Limerick
00.92%	15	Architectural Association School of Architecture
00.86%	14	ETSA Universidad del País Vasco,
00.68%	11	University College London
00.68%	11	Escuela de Arquitectura
00.61%	10	University of Florence
00.55%	9	Delft University of Technology
00.55%	9	University College Dublin
00.55%	9	Politecnico di Milano
00.49%	8	Universidad Politecnica de Madrid,
00.49%	8	Politecnico di Bari
00.43%	7	National Technical University of Athens
00.37%	6	Oxford Brookes Department of Architecture
00.37%	6	Universitatea de Architectură şi Urbanism "Ion Mincu"
00.37%	6	ETSA Universidad de Sevilla
00.37%	6	ETSA Universidad de Navarra
00.37%	6	Dublin Institute of Technology
00.37%	6	İstanbul Teknik Üniversitesi
00.37%	6	ETSA Universidad CEU San Pablo
00.37%	6	University of Sassari
00.31%	5	Universidad Politecnica de Cartagena,
00.31%	5	Aristotle University of Thessaloniki
00.31%	5	ETSA Barcelona de la Universitat Politècnica de Catalunya
00.31%	5	Universiteit Hasselt // Hasselt University
00.25%	4	University of Architecture, Civil Engineering and Geodesy
00.25%	4	Graz University of Technology (TU Graz)
00.25%	4	Technische Universität Wien // Vienna University of Technology
00.25%	4	Glasgow School of Art (University of Glasgow)
00.25%	4	University of Westminster
00.25%	4	University of Belgrade
00.25%	4	University of Thessaly
00.18%	3	École nationale supérieure d'architecture de Versailles
00.18%	3	Università IUAV di Venezia
00.18%	3	Wroclaw University of Technology

00.18%	3	Instituto Superior de Ciências do Trabalho e da Empresa (ISCTE)
00.18%	3	Universitatea Politehnică din Timişoara
00.18%	3	ETSA Universidad Europea de Madrid
00.18%	3	Universität für Angewandte Kunst Wien // University of Applied Arts Vienna
00.18%	3	Università di Bologna
00.18%	3	University of Strathclyde, Faculty of Engineering, Department of Architecture,
00.18%	3	University of Maribor
00.18%	3	London Metropolitan University
00.18%	3	Royal Danish Academy of Fine Arts
00.18%	3	École nationale supérieure d'architecture de Nantes
00.18%	3	Escola de Arquitectura da Universidade do Minho
00.18%	3	Zurich University of Applied Sciences (ZHAW)
00.18%	3	ETSA Vallès de la Universitat Politècnica de Catalunya
00.18%	3	Academy of Fine Arts Vienna
00.12%	2	Chalmers University of Technology
00.12%	2	Budapest University of Technology and Economics
00.12%	2	Liverpool John Moores University
00.12%	2	Universidade de Lisboa
00.12%	2	Vilnius Gediminas Technical University
00.12%	2	Haute École du paysage, d'ingénierie et d'architecture de Genève
00.12%	2	Hochschule für Technik und Architektur Freiburg
00.12%	2	Università della Svizzera Italiana
00.12%	2	Universitatea Tehnică "Gheorghe Asachi"
00.12%	2	Vysoká škola uměleckoprůmyslová v Praze // Academy of Arts, Architecture and Design in Prague
00.12%	2	Technische Universität München
00.12%	2	University of Applied SciencesFontys
00.12%	2	Amsterdam School of the Arts
00.12%	2	University of Palermo
00.12%	2	Bauhaus Universität Weimar
00.12%	2	École nationale supérieure d'architecture de Normandie
00.12%	2	École nationale supérieure d'architecture de Paris-Val de Seine
00.12%	2	Università degli Studi Roma Tre
00.12%	2	ETSA Universidad de Alcalá
00.12%	2	Arkitektskolen Aarhus // Aarhus School of Architecture
00.12%	2	The Ss. Cyril and Methodius University
00.12%	2	Cardiff University
00.12%	2	Slovak University of Technology in Bratislava
00.12%	2	Barcelona Institute of Architecture
00.06%	1	University of Sheffield
00.06%	1	University of Reading
00.06%	1	École nationale supérieure d'architecture de Clermont-Ferrand
00.06%	1	ETH Zurich
00.06%	1	INSA de Strasbourg (Institut national des sciences appliquées)
00.06%	1	The Royal Institute of Technology (KTH)
00.06%	1	Northumbria University
00.06%	1	Gdańsk University of Technology
00.06%	1	Silesian University of Technology
00.06%	1	Leibniz Universität Hannover
00.06%	1	École spéciale d'architecture (ESA)
00.06%	1	University of Sarajevo
00.06%	1	Sapienza University of Rome
00.06%	1	Vrije Universiteit Brussel
00.06%	1	Dardania College
00.06%	1	Universitatea Tehnică Cluj-Napoca
00.06%	1	University of Parma
00.06%	1	University of Portsmouth, UK
00.06%	1	Technical University of Crete
00.06%	1	Technische Universität Berlin
00.06%	1	London South Bank University
00.06%	1	Beykent Üniversitesi
00.06%	1	Norwegian University of Science and Technology
00.06%	1	Akdeniz Üniversitesi
00.06%	1	University of Niš
00.06%	1	ETSA Universidad de Las Palmas de Gran Canaria
00.06%	1	Fachhochschule Potsdam // Potsdam University of Applied Sciences
00.06%	1	ETSA Universidad de Valladolid
00.06%	1	University of Plymouth
00.06%	1	Gebze Teknik Üniversitesi
00.06%	1	Yildiz Teknik Üniversitesi
00.06%	1	Escuela Tecnica Superior de Arquitectura y Edificación
00.06%	1	Kaunas University of Technology
00.06%	1	Fachhochschule Biberach // Biberach University of Applied Sciences
00.06%	1	University of Naples Federico II
00.06%	1	Marche Polytechnic University
00.06%	1	Cork Institute of Technology/University College Cork
00.06%	1	University of Camerino
00.06%	1	École nationale supérieure d'architecture de Saint-Étienne
00.06%	1	Second University of Naples
00.06%	1	POLIS University
00.06%	1	École nationale supérieure d'architecture de Nancy

00.06%	1	University of L'Aquila
00.06%	1	University of the Arts London
00.06%	1	University of Liechtenstein
00.06%	1	University of Kent
00.06%	1	Universität Karlsruhe
00.06%	1	Umeå School of Architecture (UMA)
00.06%	1	Newcastle University
00.06%	1	École nationale supérieure d'architecture de Lyon
00.06%	1	New Bulgarian University
00.06%	1	ETSA Universidad Alfonso X
00.06%	1	Institute for Advanced Architecture of Catalonia
00.06%	1	L'Université de Liege // University of Liege
00.06%	1	École nationale supérieure d'architecture de Paris-Belleville
00.06%	1	ETSA Universidad de Málaga
00.06%	1	Queen's University Belfast
00.06%	1	Fachhochschule Coburg // Coburg University of Applied Sciences
00.06%	1	Rheinisch-Westfälische Technische Hochschule Aachen // RWTH Aachen University
00.06%	1	University of Cambridge
00.06%	1	University of Liverpool
00.06%	1	Brno University of Technology
00.06%	1	Technische Universität Darmstadt
00.06%	1	İstanbul Bilgi Üniversitesi
00.06%	1	University of Novi Sad
00.06%	1	University of Split

Fig.0.1: schools (of graduation) were represented by participants of the Architecture's Afterlife survey.

Initially, as postulated in the research plan, the data collected through the survey were split into three different flows: graduates that have stayed in the building architectural sector (Flow A), graduates that have moved to related sectors, such as the construction industry (Flow C); graduates that have moved to non-related sectors (Flow D). In addition, the survey also looked into graduates that combine the profession of building architect with work in other sectors (Flow B). The analysis and interpretation of the data from the survey led to the redefinition of the flows. Because from the survey it was evident that creative industries was a major field toward which the graduates in architecture tend to migrate, and because the flow of graduates combining architecture with other discipline did not present significant differences in term od answer with the flow of graduates working only in the architectural field, we decide to redefine the flows as follow: graduates employed in architecture (Flow 1), graduates employed in sectors related to architecture (Flow 2), graduates employed in creative industries (Flow 3), graduates employed in other sectors not related to architecture nor to related industries (Flow 4).
Thus, before proceeding with the qualitative analysis, the four flows on which the research work continued the investigation were rigorously defined and established (Flow 1, Flow 2, Flow 3, and Flow 4).

Flow 1: graduates employed in ARCHITECTURE

Individuals whose occupation complies with the definition of 'Building Architects', involved in design commercial, industrial, institutional, residential and recreational buildings and plan and monitor their construction, maintenance and rehabilitation, as provided by ESCO - Occupations - European Commission (code 2161), and people whose 60/70% occupation is dedicated to architecture as defined by the ESCO (weekly base also related to social statute).

Flow 2: graduates employed in SECTORS RELATED TO ARCHITECTURE

Individuals whose occupation can be defined within the sectors of Architects, planners, surveyors and designers (216) with the exception of Building Architects (2161). It includes Landscape Architects (2162), Product and Garment Designers (2163), Town and Traffic Planners (2164), Cartographers and Surveyors (2165), Graphic and Multimedia Designers (2166), Interior designers and decorators (3432), Construction supervisors (3123), Civil engineering technicians (3112), Construction project manager (1323), Project builder (1323), Clerk of works (3112), Quantity surveyor (2149), but also Real estate agents and property managers (3334), architecture lecturer (2310.1.3), etc.

Flow 3: graduates employed in CREATIVE INDUSTRIES

Individuals whose occupation is in cultural and creative sectors. The flow 3 includes people whose activities are based on cultural values or artistic and other individual or collective creative expressions. The activities may include the development, the creation, the production, the dissemination and the preservation of goods and services which embody cultural, artistic or other creative expressions, as well as related functions such as education or management. They will have a potential to generate innovation and jobs in particular from intellectual property. As identified in the 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the Creative Europe programme (2021 to 2027) and repealing Regulation (EU) No 1295/2013' the sectors include architecture, archives, libraries and museums, artistic

crafts, audiovisual (including film, television, video games and multimedia), tangible and intangible cultural heritage, design (including fashion design), festivals, music, literature, performing arts, books and publishing, radio, and visual arts.

Flow 4: graduates employed in OTHER SECTORS NOT RELATED TO ARCHITECTURE, NOR TO CREATIVE INDUSTRIES

The Flow 4 of Architecture's Afterlife includes architectural graduates who do not work in occupations included in flow 1, 2 and 3, that is, they do not work as architects, in occupations related to architecture, and in professions included in "cultural and creative sectors".

In-depth interviews

The reorganisation of the survey groups influenced the second phase of the research, allowing for the refinement of the study sample and how the qualitative analysis was conducted. The qualitative analysis was, in fact, followed by 49 interviews with graduates working in architecture, in sectors related to architecture, in creative industries, and in sectors not related to architecture. The interviees were selected among the survey's participants and also among the partners' professional networks. The interviewees were selected taking into consideration their representativeness in the frame of their specific sector, the geographical balance, and the gender balance.

The 49 interviews were equally distributed into the four flows structuring the research (graduates working in architecture, in sectors related to architecture, in creative industries, and in sectors not related to architecture). For each group, personalities were selected from profiles proposed by members of the research group that intercepted questions raised in the quantitative analysis, while another part of the interviewees for each stream were selected from among the survey participants who volunteered to continue collaborating in the study.

Multiplier Events

A key tool both for the dissemination of the results of the investigation conducted and for the development of the research itself was the periodic holding of Multiplier Events which summaries and participants list can be found on the official website of the project[1]. Through such meetings, to which experts active in the plurality of worlds in which architecture graduates operate were invited, a fertile exchange between subjects was constructed.

Each Multiplier Event was structured from the identification of target groups interested and active in the themes that were presented. The core of the ME was made by the report presentation which was followed by a discussion in which the selected invitees were called upon to contribute their own experiences and/or visions on the presented report's results. Thus we articulated the themes and interlocutors from professional architectural practice (Multiplier Event 01, online event), to Professional bodies and institutions (Multiplier event 03, online event), Education Administrators (Multiplier Event 04, online event), Higher Education Policy Makers (Multiplier Event 05, in the frame of the EAAEAnnual Conference 2022 in Madrid), Professionals engaged in Creative Industries (Multiplier Event 02, online event), and in sectors other than architecture (Multiplier Event 06, online event), consolidating the outcomes of the study and stimulating and driving the development of the work.

The reached audiences were international and wide, therefore the result was the heterogeneity and variety of the findings, and of the data that emerged from the research. These data have been collected in reports, processed and presented according to a diversified time frame, constitutes, when analysed, systematised and organised a coherent and complementary set of information that allows us to draw an overall picture of the relations between Architecture Education (AE) and the world of work, questioning the origins of the misalignments found between the two worlds and suggesting possible lines of action and impact in the multifaceted landscape of practices and activities involving architecture graduates in the contemporary condition.

[1] http://architectures-afterlife.com/en/project-course?q=4

WP4D

PEDAGOGIC IMPACT FOR ARCHITECTURE CURRICULA

Investigating the possible implications of the study, in relation to Architecture Education curricula, themes emerged around the relationships between the skills and knowledge provided by AE and practice in architecture (Flow 1).

Among respondents who work as architects in practice -being it exclusively as architects or combining architecture with another occupation-60% believe that studies in architecture have prepared them very well or somewhat good (11% and 49% respectively). Similar results emerge if we consider only those working only in architecture (10.4% and 50.3%).

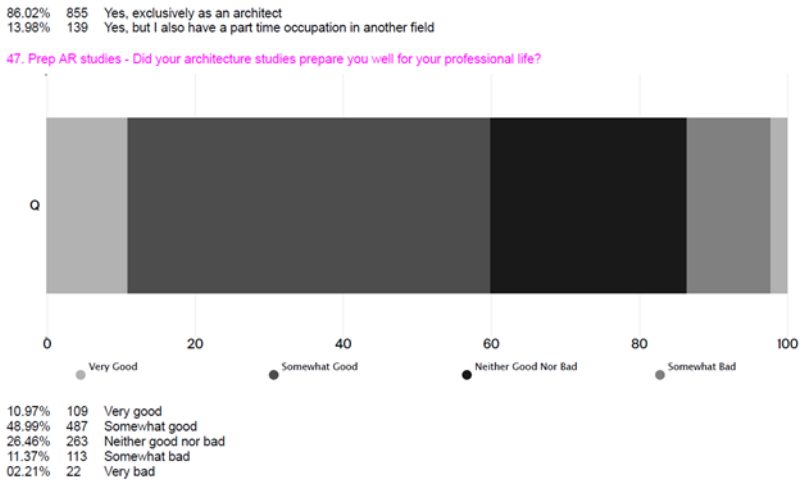


Fig.d.1: Did AE prepare you well for professional life? (Prevalently working as architect.)

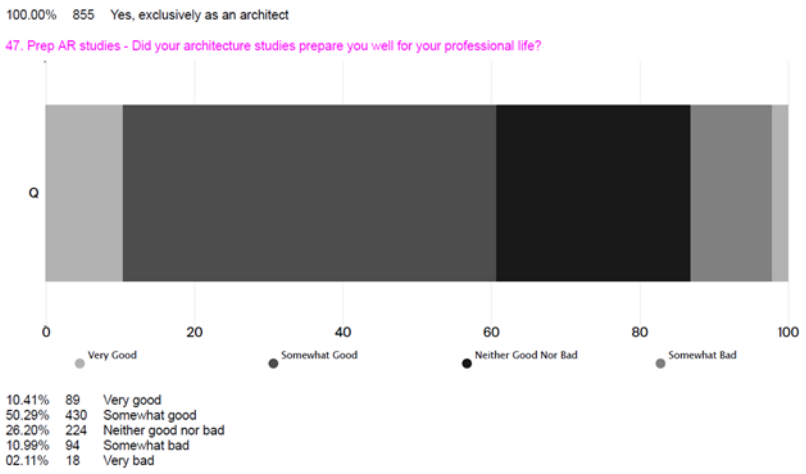


Fig. d.2: Did AE prepare you well for professional life? (Exclusively working as building architect.)

To recognise what these responses are based on and to find out which kind of interaction exists between AE curricula and professional practice, we investigated the discrepancies between the skills acquired in AE and the skills most used in practice, how the most used skills were acquired, and, finally, which skills can be achieved in formal education, and which cannot be acquired during studies.

MISMATCHES BETWEEN SKILLS ACQUIRED IN AE AND SKILLS MORE USED IN PRACTICE

To better understand and organise the analysis of the data coming from the survey, we clustered the competencies into the following groups: Skills and knowledge, Processing information, Personal competence, Presentation and communication, Diversity Competence, Cooperation competence, and Employability.

The Skills and knowledge cluster includes Design-thinking, Spatial skills, Digital skills, Visualisation skills, Theory and History, Knowledge of sustainability, and Technical knowledge about buildings and construction.

Processing information includes Developing vision, Being passionate about architecture, Inquiring and questioning, Research skills, Being critical, Dealing with complexity, Decision making, Taking an artistic approach, and Producing something relevant.
Personal competence includes Determination, Work ethic, Endurance, Handling criticism, Flexibility, Constant learning and self-improvement, and Dealing with uncertainty or being able to function in conditions of uncertainty.

Presentation and communication refer to Presentation skills.
Diversity Competence includes Empathy and Openness to other views and ways of living.
Cooperation competence includes Working with clients, Collaboration skills, and Mediating skills.
Employability refers to Project management skills and Business management skills.
Generally, respondents reported that Personal competences are the ones they acquired the best during education. They also needed them the most in their current jobs. Also, Skills and Knowledge, and Processing information were well acquired and often used. However, we see a possible mismatch when we look at Diversity competence, Cooperation competence, and employability. People reported that they often use Cooperation competences, but those were not acquired very well through education. Employability skills (Project management and Business management skills) were acquired the worst, while these were still quite often needed in the workplace.

How well did you acquire? (FLOW A)	(1 to 5)	
	Mean	Std. Dev.
Business management skills (e.g. managing a business, company, department)	1,52	1.016
Working with clients	1,65	1.056
Mediating skills (e.g. negotiations, conflict mediation,...)	1,98	0.971
Project management skills (e.g. time management, productivity,...)	2,22	1.281
Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	2,45	1.019
Empathy (e.g. being interested in the story of someone else)	2,66	1.074
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	2,92	1.083

Openness to other views and ways of living	3,11	1.059
Decision making (e.g. taking a stance, making judgments,...)	3,16	0.994
Inquiring and questioning (e.g. investigating a brief for a project,...)	3,19	0.91
Dealing with uncertainty / being able to function in conditions of uncertainty	3,19	1.067
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,21	0.972
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	3,23	0.951
Producing something relevant	3,26	0.984
Collaboration skills (e.g. team work)	3,28	1.004
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	3,34	0.904
Dealing with complexity	3,35	0.866
Presentation skills (e.g. selling an idea, public speaking,...)	3,37	0.912
Developing vision	3,46	0.864
Visualisation skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	3,49	0.832
Flexibility (e.g. adaptability, being open for change and renewal,...)	3,5	0.796
Being critical (e.g. taking critical distance from own work)	3,57	0.884
Handling criticism	3,6	0.872
Constant learning and self-improvement	3,61	0.825
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	3,72	0.806
Being passionate about architecture	3,75	0.788
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	3,75	0.942
Work ethic (e.g. self-discipline, willingness to work hard,...)	3,75	0.801
Theory and History (e.g. of architecture, art, culture, humanities,...)	3,79	0.847
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	3,99	0.803
Endurance (e.g. working under pressure, handling stress and deadlines,...)	4,15	0.815

How often do you use? (FLOW A)	(1 to 5)	
	Mean	Std. Dev.
Theory and History (e.g. of architecture, art, culture, humanities,...)	2,74	0.915
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	3,06	0.788
Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	3,42	1.103
Business management skills (e.g. managing a business, company, department)	3,42	0.95
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,61	0.799
Mediating skills (e.g. negotiations, conflict mediation,...)	3,63	0.968
Visualisation skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	3,66	0.84

Inquiring and questioning (e.g. investigating a brief for a project,...)	3,66	0.959
Developing vision	3,71	1.061
Handling criticism	3,71	1.057
Being passionate about architecture	3,76	1.031
Openness to other views and ways of living	3,81	1.05
Empathy (e.g. being interested in the story of someone else)	3,82	0.983
Presentation skills (e.g. selling an idea, public speaking,...)	3,85	1.058
Producing something relevant	3,9	1.052
Dealing with uncertainty / being able to function in conditions of uncertainty	3,9	0.977
Being critical (e.g. taking critical distance from own work)	3,97	1.018
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	4,05	1.076
Endurance (e.g. working under pressure, handling stress and deadlines,...)	4,06	0.933
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	4,1	1.021
Flexibility (e.g. adaptability, being open for change and renewal,...)	4,1	1.015
Constant learning and self-improvement	4,1	0.984
Project management skills (e.g. time management, productivity,...)	4,18	1.129
Decision making (e.g. taking a stance, making judgments,...)	4,21	0.998
Dealing with complexity	4,22	1.166
Work ethic (e.g. self-discipline, willingness to work hard,...)	4,26	1.097
Working with clients	4,26	0.89
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	4,28	1.065
Collaboration skills (e.g. team work)	4,28	1.021
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	4,35	1.138
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	4,49	0.781

It is evident from the direct collection of survey data that there is also a mismatch between the skills that are most transmitted in the course of architectural studies and those that are considered most useful or most used in the architect's professional practice.

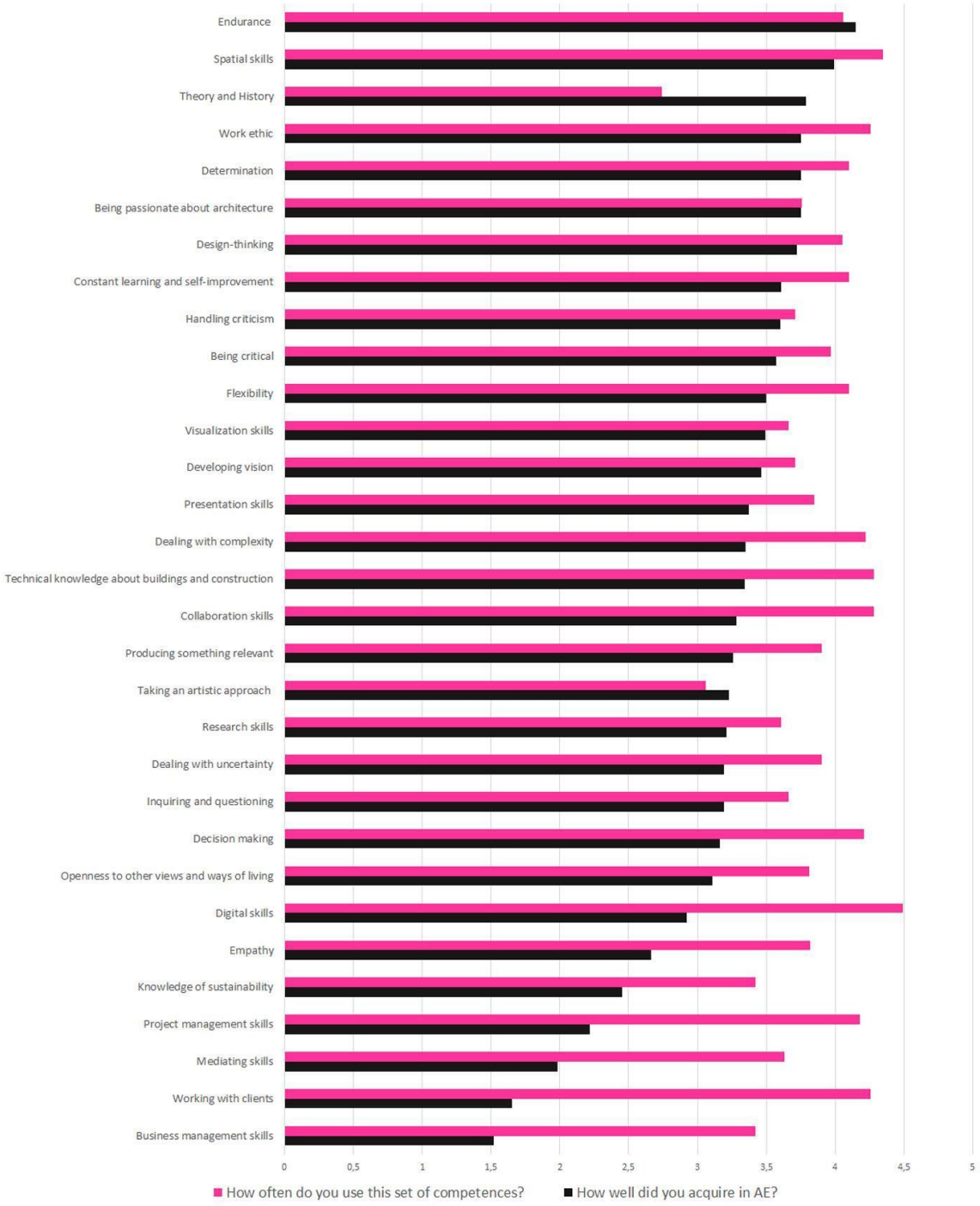


Fig. d.3: Mismatches in Competences and Skills. Comparison between AE and professional world.

Respondents tended to believe that all of the skills conveyed by AE were useful, except for those grouped under the heading Theory and History, which they felt were overly present in programs and poorly applied in practice.

In numerical terms, the deviation between How well the knowledge grouped under "Theory and History" was acquired (3.79) and How useful it is for professional practice (2.74), it is, along with "Taking an artistic approach" (3.23 vs. 3.06), the only set of skills in which respondents perceive an imbalance between their weight in the curriculum and professional practice.

The only almost perfect match regards the “Being passionate about architecture” (3.75 vs 3.76) and “Endurance” (4.15 vs 4.06).

In the in-depth interviews, architects also offer qualitative information about the competences acquired more used. To the question, **What did you take from your architectural education in your current job?** They answer:

F1-01:
“I think that Education was not properly educating me as a partner in the company or somebody who will run a company.”

F1-02:
“Trained for interaction with colleagues (team working at university).”

F1-03:
“Global vision (from the failures in AE). Time management.”

F1-04:
“Being able to make decisions, little by little, step by step, without panic. Space to fail and to get self-confident. Being critical.”

F1-05:
“Technical building competencies. Developing creativity.”

F1-06:
“A general frame of competences on which to evolve. A 360-degree vision to approach problem-solving.”

F1-07:
“Design skills and creativity through the multiple project experiences we have to go through in AE in the UK.”

F1-08:
“Building competences, polytechnic background.”

F1-09:
“Teamworking. Open minded. Critical thinking.”

F1-10:
“From the beginning, only the experience in Design Studios. And building construction courses.”

F1-11:
“I studied in the UK, Spain, and Belgium. I learned practical things (technical and related to real work) in Spain and UK. In Belgium, I acquired something like a way of thinking, creative thinking, or to be open-mindedness.”

F1-12:
“Discipline. Communication between colleagues. Multiple interest enlighting architectural approach.”

To go deeper understanding the relationship between AE and professional practice, we also asked:

Which skills/competences are stressed too much in AE?

F1-01
“I was studying a long time ago, so in the beginning of the 90s. When we started the company and started to get new employees, they would not skilled for the work you were expecting at the office, so I would also say that my university could not prepare me for my job.”

F1-02
“Technical courses were too theoretical and specific.”

F1-04
“I feel my AE was quite balanced.”

F1-05
“Things that you consider not useful depend on your professional path. AE is a panoply of things, depending on the kind of Architect you will become, you will use some of them and not others.”

F1-06
“In some fields, AE goes too deep in explaining theory and fundamentals of operations that nowadays are automatically calculated by softwares (structure, technical plans).”

F1-07
“Even the things that seem not directly helpful, can be useful in a more subtle way, forming you as an architect, building your mind. not only practical things are needed.”

F1-08
“Architect was considered only as a builder, a maker.”

F1-09
“When i was studying I was not satisfied, but afterward, nowadays, I think that everything I've learned has been somehow useful.”

F1-10
“In my time, the university taught us only how to design. The school gave you a sensitivity to any kind of beauty, balance, harmony but, on the practical side, nothing!.”

F1-11
“Everything is focused on design activity, with very little tie to construction technology and site work.”

F1-12
“there wasn't a diversity in understanding about the historical education of architecture. It was very European centric and very male-focused.”

and:

Which skills/competences are not addressed enough in AE?

F1-01

“There was not enough education about economics. My feeling is that the education was mostly like a bubble, not directly knowing what the job of an architect is.”

F1-02
“Management. Construction process and construction site process. Building materials behavior.”

F1-03
“Co-design. It's not about working together but thinking and finding solutions collectively.”

F1-04
“Economic side of the project. Professional software (BIM). Professional practice techniques (documents, regulation, and bureaucracy).”

F1-05
“How to make a business model, out of Architecture Learn. How to find important information (legislation...) A Global overview on Computer design tools (not focusing on specific software, but knowing what is available, or a panorama).”

F1-06
“Entrepreneurial approach. Economics in the construction process. Technical details at a buildable scale.”

F1-07
“Most of the teachers are not practitioners, therefore they are not able to teach design practice.”

F1-08
“Public presentation techniques, Infographic, data analysis. Creatorship targeting other sectors (graphic design, film, writing...) Business management. Accounting. Website creation and management. Writing. Research and reflective practice. Visual culture (film, art, etc.).”

F1-09
“Oral presentation skills (nowadays is better), public speaking.”

F1-10
“We knew nothing about management, from regulatory requirements to the economic organization of the office. So, after the studies, we didn't know how to do a project, a real one.”

F1-11
“In Belgium, there is no connection to real practice. Project management or technical skills can only be acquired during the internship period.”

F1-12
“Education about what real life will be. No education about Architectural practice.”

HOW THE MOST USED SKILLS WERE ACQUIRED? (SOFT/HARD SKILLS)

In order to investigate how the most used skill sets in professional work were acquired in the course of university studies, the administration of the in-depth interviews was crucial. Among professionals falling under Flow1, the following emerges:

What are the most important competences in your job and why?

F1-01
"Be - passionate - curious – patient."

F1-02
"capacity of observing problems from different points of view; listen to the client; combining intellectual reasoning and practical problem solving."

F1-03
"Global vision of the situation in which the projects are developed; Team Working and collaboration; Deal with clients, stakeholders and public administration."

F1-04
"managing many things at the same time; being able to foresee the consequences of your decisions; being able to take decisions without panic"

F1-05
"Creativity; Strong technical background both in building techniques and in building legislation/regulation; Finance."

F1-06
"Technical competences and basic culture; Global preparation to be able to dialogue with several specialist. Knowledge about general frame of construction and legislation. Economical knowledge. Ability in communicating with others."

F1-07
"Interacting/understanding with clients. Understanding what clients want and what they are expecting (emotional brief understanding). Be critical and helpful with the team."

F1-08
"Communication skills. Self Confidence. Leadership. Digital skills (software and digital tools). Critical thinking. Be able to defend your project."

F1-09
"Technical knowledge and creativity. Critical thinking. Self-criticism. Ability in research. Teamworking. How to present ideas. Capacity of listening to people. Self-confidence."

F1-10
"I think the most important thing is teamwork. And management too."

F1-12
"Communication and being able to articulate a design intent with your team in a clear and concise way also to the client. Translation. Team leading."

How did you acquire them?

F1-01
"It's a personal approach. Mostly learning by doing it."

F1-02
"learning by practice. A personal attitude."

F1-03
"It is a Personal attitude. I acquired them by working in groups during Architecture studies."

F1-04
"in AE: repeating the design process several times through several design experiences - practising."

F1-05
"Creativity: learning by doing + school + internship. Building legislation and finance: through lectures, courses and readings outside university."

F1-06
"Most of them by practising."

F1-07
"It comes from personal sensibility, you cannot acquire them in university."

F1-08
"Studio vertically organised, and discussions with teachers (communication skills). Practising public presentation in any grade of school and after."

F1-09
"Discussion with the team (in AE but not only). Discussion with the teacher. Personal attitude."

F1-10
"I think the ability to build a team comes from my experience in the company. And management we have learned from our failures."

F1-11
"I acquired them during the internship period (2 years)"

F1-12
"In the internship, after part 1. Especially non-verbal communication, and body language."

A wide gap is recorded between Digital skills, Empathy, Knowledge of sustainability, Project Management skills, Mediation skills, working with clients, and business management skills, and the role these knowledge and skills play in practice. These become evident observing the answers provide by architects in-depth interviewed.

Specially regarding Digital skills, in the in-depth interviews We ask specifically About digital skills: **what is their role in your profession? What's their relation with creativity? Are new generation enough trained?**

F1-01
"I had the luck that I started to use computers as a pioneer in the 90s. So, it was like cutting-edge technology at the time."

F1-02
"Digital technologies do not affect creativity if you master them well. New generations have good training. Constant training and updating are needed."

F1-04
"BIM is nowadays very important in our practice. It makes us more competitive. It's quite difficult to find young graduates trained in this kind of professional software, they are more trained in traditional representation and modelling software."

F1-05
"Basic digital skill such as word and excel are important and not well managed. This training should be done in school. New graduates are better with photo editing software and basic computer-aided design."

F1-06
"Digital skills are fundamental to the profession. Professional software such as BIM is not taught enough in universities. Virtual reality technology should also be learned in university. Integration between design software and computational software should be taught."

F1-07
"They are becoming more and more important, specifically, virtual reality, to check every detail of your project. They can be used to explore architects' creativity, but we must be aware that we should not become their slaves, but push them. Most universities do not train students in professional software (Revit), it means not having a connection with the real world."

F1-08
"We are using traditional digital skills, not BIM, but probably we will move to BIM as public tenders often require it. We use social media to disseminate our projects. Young interns are usually well equipped with those skills."

F1-10
"Today, the specialisation, mixed with digital technologies like BIM, opens new extraordinary possibilities. Instead, I believe that creativity is still about hand-drawing."

F1-11
"Digital technology has helped a lot in having a strong and inclusive exchange of knowledge, which was impossible before."

F1-12
"I use different software from those that are taught at university. But there are so many ways of practice, it is impossible to say which digital skills will be useful for everybody. I

had to learn adaptability and being brave and constantly try new things to acquire new skills."

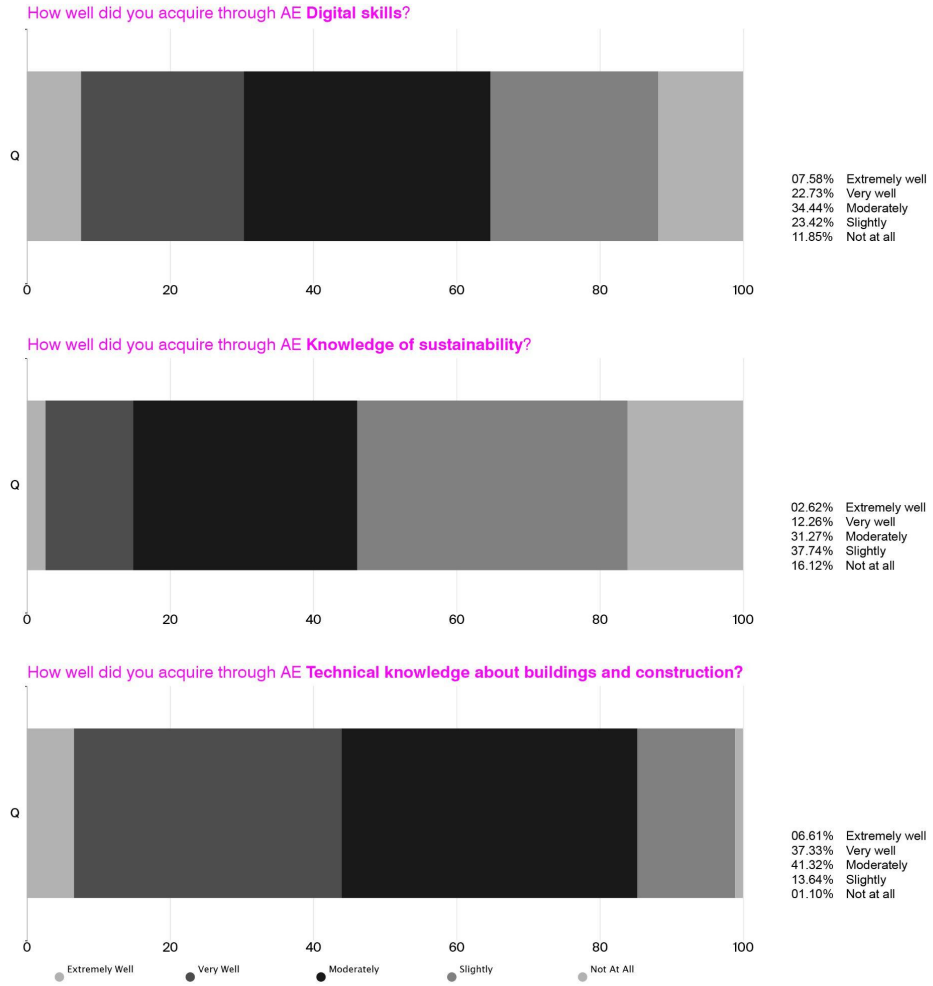


Fig. d.4: A compared set of three hard skills (Digital skills, Sustainability, and Technical knowledge).

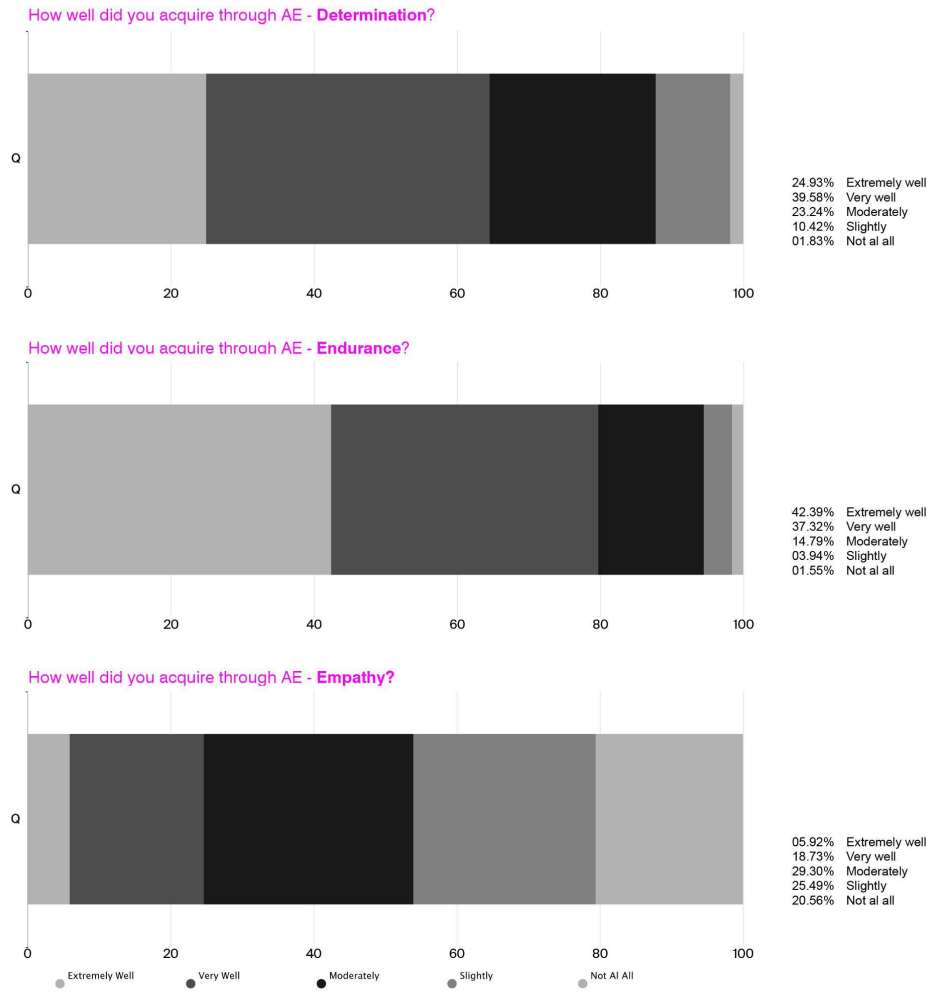


Fig. d.5: A compared set of three soft skills (Determination, Endurance, and Empathy).

Regarding soft skills and qualities such as Work ethic, Passion for architecture, Determination, Endurance, and Spatial Skills, there is a substantial coincidence between the weight they have in curricula and teaching experience and the frequency of use in the work as an architect. In particular, “Endurance” (4.15 vs. 4.06) and “Being passionate about architecture” (3.75 vs. 3.76) are the only two items on the list proposed in the survey where this coincidence is total.

The importance of those skills emerges clearly in the in-depth interviews, in which we asked in relation to **soft skills: What is their importance for your job? How did you learn them? Should they be taught during AE? and How?**

F1-02
“Trained in communication skills through Design studio in AE. It would be good to introduce in AE Specific focus on public speaking.”

F1-03
“Soft skills are crucial. I acquired them by myself.”

F1-04
“We trained our communication skills through public presentation of our work in my AE. But no techniques, tips, or rehearsals were given. It will be useful to have more explicit training on presentation skills.”

F1-05
“The teachers should be trained to communicate. If they are not good communicators, they cannot teach the students how to communicate. You can only learn how to communicate from your teachers and from your colleagues, observing them.”

F1-06
“Very important, I learned them through books and Ted talks in a sort of self-education. They should be taught in university at different levels and in several ways.”

F1-07
“Very important, totally missing in AE. These skills should be transmitted through the tutor. In the UK he is your reference, your master, and you are bound to him/her. Courses focused on this topic could be helpful as well, but should not be separated from practical activities.”

F1-08
“Communicating architecture is very important. I learned it by doing. Teaching communication skills in AE can be useful for people struggling with them (introverted people), many people can learn them just by themselves, practising presentations.”

F1-09
“Communication skills should be taught in AE. Graphical communication is also very important: teaching graphical expression depends on the teacher.”

F1-10
“Yes, of course. You acquire them all the time, at school (mainly in Design Studios), travelling, etc.”

F1-12
“Listening to people and understanding their strengths and weaknesses is fundamental. My tutor taught me how to be supportive and confident.”

Interviews show that there are some skills that can be acquired in formal education and skills that cannot be acquired during the studies. In this sense, in-depth interviews offer a differentiated look at quantitative survey data. In interviews, the opportunity to converse and compare allows for different nuances to be made to be seen, which, many times, are related to the personal experience and views of individuals. To better understand this relevant aspect, we asked:

What's the most important thing you have learned through AE?

F1-01
“For me, the best time was that: I was away from the family, alone. I was the one who had to do the job, not you know there is no help from the family and this is important that people at that time are liberated from parents or that they start thinking alone.”

F1-02
“Having a larger vision, a bigger picture of things.”

F1-03
“Global vision of the situation in which the projects are developed.”

F1-04
“Technical approach. Structural competence.”

F1-05
“Multiplicity of points of view (by discussing with many teachers with opposite ideas) Laws and how a practice works (course on the last year).”

F1-06
“Creativity in design. To be able to discuss your idea, to deal with colleagues, and to accept judgments from your peers and failures.”

F1-08
“Strong relationship with a Master.”

F1-09
“Technical skills, creativity, and critical thinking.”

F1-10
“A comprehensive view of the complexity of the design process. Now AE is more directed to specialisation and is correct but I am sad that the global vision we had 25 years ago is being lost. However, I am very excited that young people have the possibility to think about a future that may not involve setting up an office.”

F1-12
“I've learned to listen; I've learned to communicate.”

In order to analyse the responses given with respect to different experiences in AE and to explain the variety of responses (in this sense, the results do not coincide either with each other or with the trends already illustrated from the survey data), it seems useful to cross-reference the previous responses with those answers to the following two other questions that allow us to profile the respondents.

Did AE form you as a person? How?

F1-01
“After studying architecture, we all changed a little bit. You get more qualities to understand art, people. Because somehow you learn to serve. Because architecture is also serving somebody, it's not egoistic work where you design just something for you."

F1-02
“Yes, AE trains you to have different mindsets and multiple approaches.”

F1-04
“Yes, training me to see things from several point of view.”

F1-05
“Yes. You get more open. You have to learn to be open to influences, open minded. You understand that there is no truth, that everything can be changed.”

F1-06
“Yes, giving me flexibility and self-confidence. It made me resistant to stress.”

F1-07
“Definitely. Hard working in AE builds your personality. I've learned to be disciplined and critical as a person.”

F1-08
“Architecture is what you dress, what you eat, who you talk to, where you go on holidays, it defines who you are. Architecture is my essence and my core. It has changed me. Architecture helps me to develop myself and to grow.”

F1-09
“Yes [doesn't explain why].”

F1-12
“I started to look at the world a little bit differently. definitely architectural education opens up my eyes and views on the world for sure.”

and:
What's being an Architect?

F1-01
“For me it's an emotional journey, but that requires every day to be more and more technical.”

F1-02
“Architect is someone interested in designing spaces that could have a positive impact on people. The ethical part of the job is important. A combination of technical and emotional job.”

F1-03
“The architect is the translator who can understand and converse with the different languages coming from engineers, sociologists, social facilitators, etc.”

F1-04
“Someone who helps people, mainly clients, to achieve some kind of a vision, who always tries to improve things. Someone giving a new perspective to common problems. Someone articulating the needs and the hope of other people in a way that is communicable and shareable.”

F1-05
“Everyone who is creating something. It can be from scratch, or transformation the existing. Who is changing the environment? An architect is someone who combines different disciplines to one solution.”

F1-06
“An architect is a passionate person. Someone able to put together technical and creative work, with great mental flexibility, able to make a synthesis of many aspects. Being an architect is related to building, on site or on paper, but to building.”

F1-07
“There are different types of architects. But in general, an architect is somebody that understands the needs of a person, of the society, and translates them into something built which transforms the life of the person or the society. It's strongly related to

building. It is both an emotional and technical job, the combination depends on the individual. there are different branches for architects, in his job an architect is specialised."

F1-08
"An Architect is a very well educated intellectual, a public intellectual who always tries to project for public good. It is a person who is very sensible towards the environment, towards people and who has ethically high standards and high moral ground. t's someone who fight for the weakest, who can really help out with the knowledge and improve given situations. Someone who strives for a beauty position because he believes that beauty is healing. This can be applied in designing everything: fashion, program brief... Someone who lives his profession with its entire body and mind."

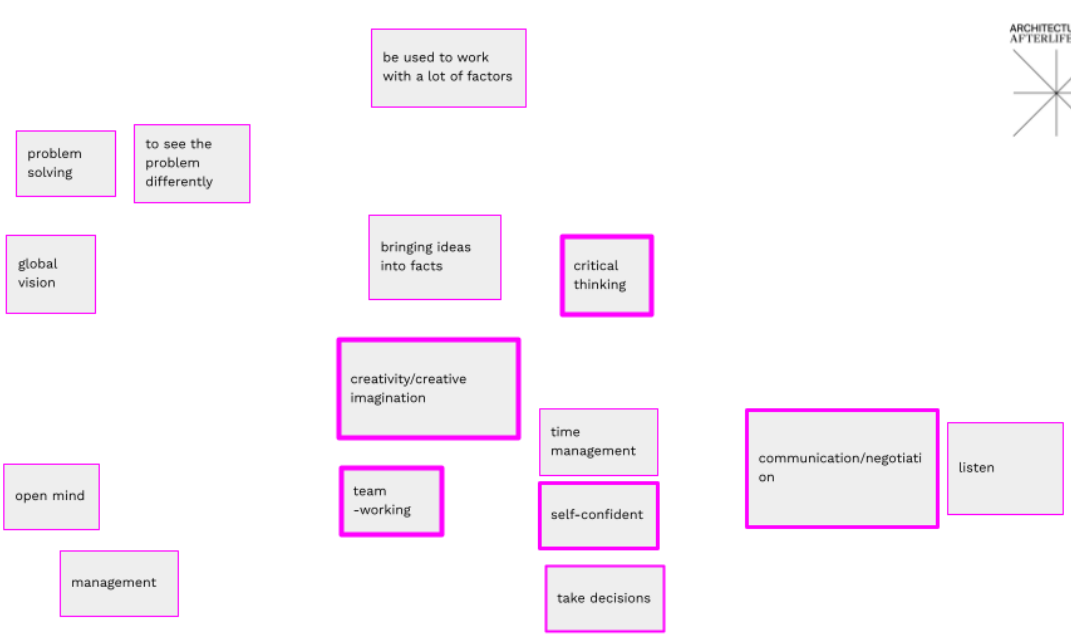
F1-09
"Much more than only building houses. A profession in which you need to give everything. A job in which you have to learn all your life. A lot of work."

F1-10
"When we studied, it seemed that if you didn't open your own office after graduation, you weren't a real architect."

F1-11
"Architect is someone that is able to build. To build a house. Today, given the complexity of the processes we have to deal with, architects and urban planners no longer have the role of team leader of working and research groups, if you really want to do transdisciplinary work."

F1-12
"I came into architecture to create lasting social change and I believe that architecture is just beyond buildings. It is actually about the human experience and that it should be. it's one of the very few professions where everybody is an expert."

As can be seen from the last-mentioned answers, in general the picture that emerges from the interviews outlines sets of skills that coincide only partially with those provided through the survey. Synthetically, the list of competencies and skills that can be compiled includes in non-hierarchical order: Problem-solving, Global vision, Open mind, Being used to working with many factors, Ability to see problems differently, Turning ideas into facts, Critical thinking, Creativity and creative imagination, Ability to work in a team, Management, Decision-making skills, Self-confidence, Communication, negotiation, and listening skills.



CONCLUSIONS WP4D

As we have seen, the relationship between the knowledge transmitted through AE responds in different ways to professional practice needs. In particular, for those professionals who practise exclusively in the field of architecture (and whom we have identified according to the definition of Flow we gave in the introduction of this Report).

The intersection of the qualitative and quantitative analyses allows us to identify some topics, issues, and shortcomings or gaps that could have repercussions, impacting on the redefinition, rethinking, adjustment, or modification of the curricula of architecture studies—rebalancing the weight of some disciplines over others, confirming or not the role of the pedagogical methods used, and suggesting the need for fluid exchange between the world of education and the world of work.

It can be inferred from the data that it is not a matter of imagining market-oriented curricula but of recording first and then intercepting changes in the condition of contemporary professional practice.

In general, from the quantitative (survey) analysis, at least four differentiated groups of knowledge and skills emerge, breaking down the responses in detail concerning the skills and knowledges sets proposed in the interviews and considering the degree of mismatch between what is taught and what respondents believe is most useful or most frequently used in the conduct of practice:

1. Among the skills in which there is an unbalanced weighing in AE, compared to the frequency or importance of such knowledge in the world of work, the following are identified "Taking an artistic approach (e.g., addressing emotions, going beyond the conventional...)", and "Theory and History (e.g. of architecture, art, culture, humanities,...)".

2. Those in which there is a coincidence and balance between AE and the world of work include exclusively “Being passionate about architecture” and “Endurance (e.g., working under pressure, handling stress and deadlines...).”

3. Those skills and knowledge that are considered insufficiently transmitted by the AE and whose mismatch exceeds 20% (on the proposed value scale ranging from 1 to 5) are Working with clients (52%); Project management skills (e.g., time management, productivity,...) (39%); Business management skills (e.g., managing a business, company, department) (38%) Mediating skills (e.g., negotiations, conflict mediation,...) (33%); Digital skills (e.g., proficient use of hardware and software, parametric approaches, ...) (31%); Empathy (e.g., being interested in the story of someone else) (23%); and Decision making (e.g., taking a stance, making judgments,...) (21%)

4. Instead, cases in which the misalignment is below 20% include, Collaboration skills (e.g. team work) (20%); Technical knowledge about buildings and construction (e.g. materials, physics, structures,...), and Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...) (19%); Dealing with complexity (17%); Openness to other views and ways of living, and Dealing with uncertainty / being able to function in conditions of uncertainty (14%); Producing something relevant (13%); Flexibility (e.g. adaptability, being open for change and renewal,...) (12%); Presentation skills (e.g. selling an idea, public speaking,...), Constant learning and self-improvement, and Work ethic (e.g. self-discipline, willingness to work hard,...) (10%); Inquiring and questioning (e.g. investigating a brief for a project,...) (9%); Research skills (e.g. systematic investigation of a problem in order to gain a better insight), and Being critical (e.g. taking critical distance from own work) (8%); Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...), Determination (e.g. commitment, persistence, dedication, willingness to achieve,...), and Spatial skills (e.g. understanding space, sensitivity to spatial features,...) (7%); Developing vision (5%); Visualization skills (e.g. hand drawing, model making, mixed media, artistic skills ...) (3%); Handling criticism (2%)

In partial contradiction with what emerged from the survey are the outcomes of the in-depth interviews in which, as seen earlier through the quotes, the respondents believe that they acquired many of the skills (soft skills) during their studies. The apparent contradiction seems to find a solution in the ways in which this knowledge was acquired, bringing out that the experiential component is closely linked to the method of knowledge transmission through seminar or laboratory/studio courses in which methodology prevails over contents.

These results open up two questions about work that could be conducted/started or on which to reflect on the way different curricula are constructed and organised: on the one hand, it seems necessary to focus on the introduction of certain themes and disciplines, considered fundamental in practice that seems insufficiently transmitted or addressed in schools of architecture; on the other hand, it calls for a deepening of the didactic and pedagogical methods of teaching through ateliers (perhaps even including in this teaching mode disciplines that are taught in a "traditional" way) but also on the spillovers that the teaching mode through the simulation of real cases.

Regarding the first issue, the work suggests adapting curricula or expanding teaching offerings that, at the students' choice, can help configure profiles with differentiated degrees of specialisation. The second issue requires study in detail or in-depth to understand how the laboratory teaching mode could also be applied to disciplines that are traditionally transmitted classically.

A significant additional level of insight that the data suggest involves cross-checking differences by country (and thus by different programs and teaching approaches).

With a view to curricular work, it would be interesting to cross-reference the discordances found with an in-depth analysis of the different curricula in different countries, how the internship system, if any, that gives access to the world of work works (licence), and, of equal importance, to the teaching methodologies employed which although they are pretty common among European schools present substantial differences, (of hours, of credits, of number).

WP4E
FORMULATION OF IMPACT UPON CONSTRUCTION INDUSTRY

QUANTITATIVE RESULTS COMING FROM THE SURVEY

From the result of the survey, we can see how often architecture graduates need these sets of competences varies according to field of occupation (WP1). Significant differences were found for skills and knowledge, processing information, personal competences, and cooperation competences.

How often do you use... (M)	Skills and knowledge (M)	Processing information (M)	Personal competence (M)	Cooperation competence (M)
Architecture (Flow A)	3,8634	3,8007	4,0481	4,0621
Architecture + other field (Flow B)	3,7951	3,8316	4,1414	4,1785
Related sector (Flow C)	3,5103	3,8368	4,2194	3,9880
Unrelated sector (Flow D)	2,8077	3,4744	4,1392	3,7179

Table e.1: The needed set of competences of architecture graduates varies according to the field of occupation..

It is not surprising that skills and knowledge that are inherent to architecture are used more often by people who are working in architecture or are combining architecture with another field. Processing information is often used in architecture, architecture + other fields, but also in related sectors. It is less relevant for the unrelated sectors. Personal competencies are important in all sectors, but especially in the related sectors. Cooperation competences are most frequently used by people who are combining architecture with another field.

If we see this table:

	Architecture (Flow A) (M)	Architecture + other field (Flow B) (M)	Related sector (Flow C) (M)	Unrelated sector (Flow D) (M)
Leading others*	3,33	3,66	3,53	3,58
Following orders and instructions	3,55	3,39	3,53	3,60
Practical, executing work*	4,00	3,91	3,43	3,81
Helping others*	3,56	3,64	3,77	3,81
Financial matters*	2,85	3,16	3,05	2,81
Managing the business, company, or department*	2,65	3,1	2,83	2,83
Artistic work (art) *	2,79	2,94	2,45	2,82
Developing new techniques or new ideas*	3,13	3,29	3,34	3,62
Selling products or services to consumers*	1,95	2,04	1,92	2,16
Giving training, education or guidance to others*	2,47	3,09	2,99	3,11
Creative work (being creative, searching for creative solutions,...) *	3,67	3,73	3,37	3,57

Communication with people within the business, company, or department	4,03	3,92	4,15	4,17
Communication with people outside the business, company, or department	3,81	3,77	3,80	3,69
Physical work, manual labor*	1,73	2,10	1,53	1,81
Taking care of, treating, or healing people	1,41	1,57	1,35	1,43
Taking care of, treating, or healing animals*	1,20	1,29	1,08	1,09
Outdoor work (working in gardens, forests or on the field) *	1,50	1,72	1,45	1,27
Working with or on machines*	1,61	1,81	1,43	1,64
Conducting and/or carrying out research*	2,12	2,69	2,81	2,30

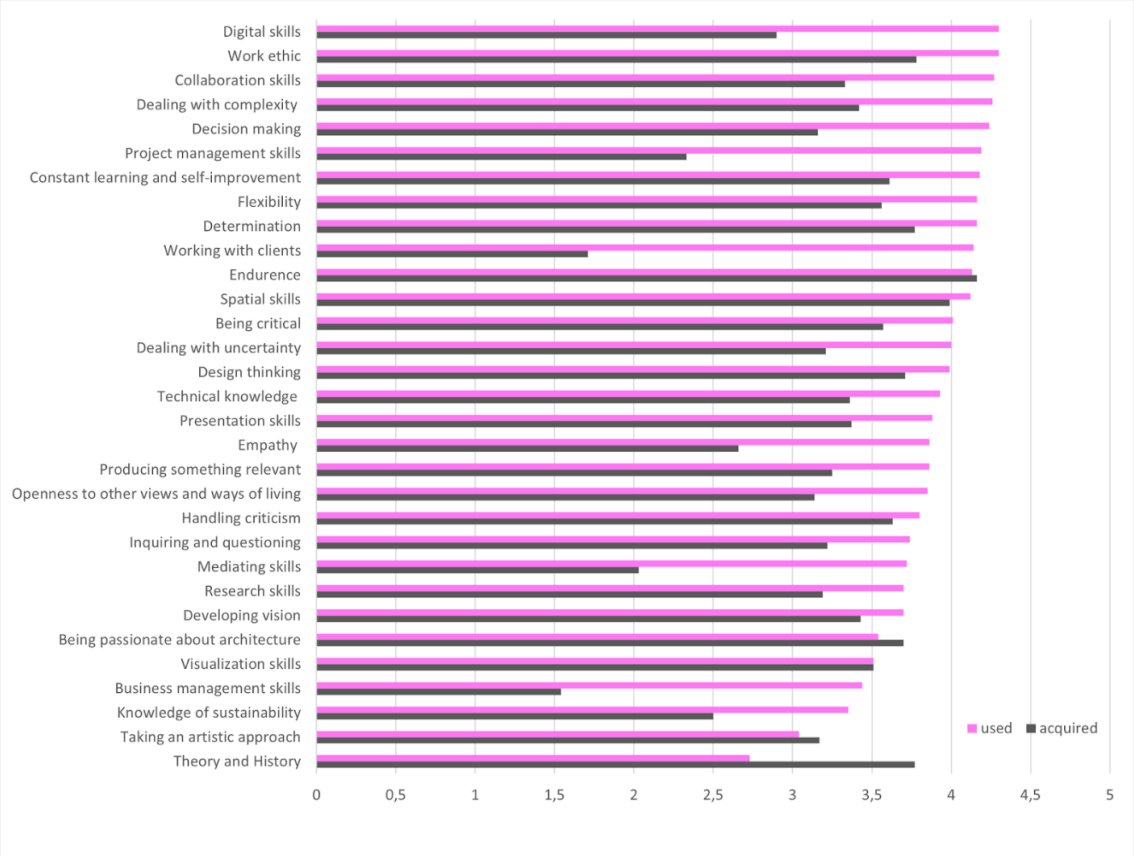


Fig. e.2: Bar chart showing acquired and used skills in Flow C.

As we can see there is no significant difference between the results in Flow 1 and Flow 2 coming from the survey. The research through the interviews can offer some differences that can help us to have some conclusions in the construction industry.

QUALITATIVE RESULTS FLOW 1

In interviews, one of the questions asked was: **What did you take from your architectural education in your current job?** And the second one was: **What are the most important competencies in your job and why?** And the answers were:

F1-1: "I think that Education was not properly educating me as a partner in the company or somebody who will run a company".

"Be passionate, curious, patient"

F1-2: "Trained for interaction with colleagues (**team working** at university)"
"capacity **of observing problems** from different points of view-**listen to the client**- combining intellectual reasoning and practical **problem solving**".

F1-3: "**Global vision** (from the failures in AE)/ **Time management**"

"**Global vision** of the situation in which the projects are developed. /**Team working** and **collaboration/ Deal with clients**, stakeholders in public administration"

F1-4: "**Being able to take decisions**, little by little, step by step, without panic- Space to fail and to get self-confident**- Being critical**"

"**Managing** many things at the same time- being able to foresee the consequences of your decisions- **being able to take decisions** without panic".

F1-5: **Technical building competencies. Developing creativity**.

"**Creativity -Strong technical background** both in building techniques and in building legislation/regulation -Finance."

F1-6: A general frame of competences on which to evolve. A 360-degree vision to approach **problem solving**.

"**Technical competences** and Basic culture Global preparation to be able **to dialogue with several specialist**. **Knowledge about general frame of construction and legislation. Economical knowledge**. Ability in communicating with others.

F1-7: **Design skills/creativity through** the multiple project experiences we have to go through in AE in UK.

Interacting/understanding with clients. Understanding what clients want and what they are expecting (emotional brief understanding). **Be critical and helpful with the team**.

F1-8: **Building competences**, polytechnic background.

Communication skills. **Self Confidence**. **Leadership**. **Digital skills** (software and digital tools). **Critical thinking**. Be able to defend your project.

F1-9: **Teamworking. Open minded. Critical thinking**.

Technical knowledge and creativity. **Critical thinking**. **Self-criticism** Ability in research. **Teamworking.** How to present ideas. Capacity of listening to people. **Self-confidence**.

F1-10: From the beginning, only experience in design studios. And building construction courses.

I think the most important thing is **teamwork**. And **management** too.

F1-11: I studied in the UK, Spain and Belgium. I learned practical things (technical and related to real work) in Spain and the UK. In Belgium I acquired something like a way of thinking, a **creative thinking** or to **be open-minded**.

F1-12: **Discipline. Communication** between colleagues. Multiple interests enlighten architectural approach.

Communication and being able to articulate a design intent with your **team** in a clear and concise way also to the client. Translation. **Team leading**.

If we represent it in a graphic diagram, we can see the most relevant competences for those architects that work in the construction field and in other fields.

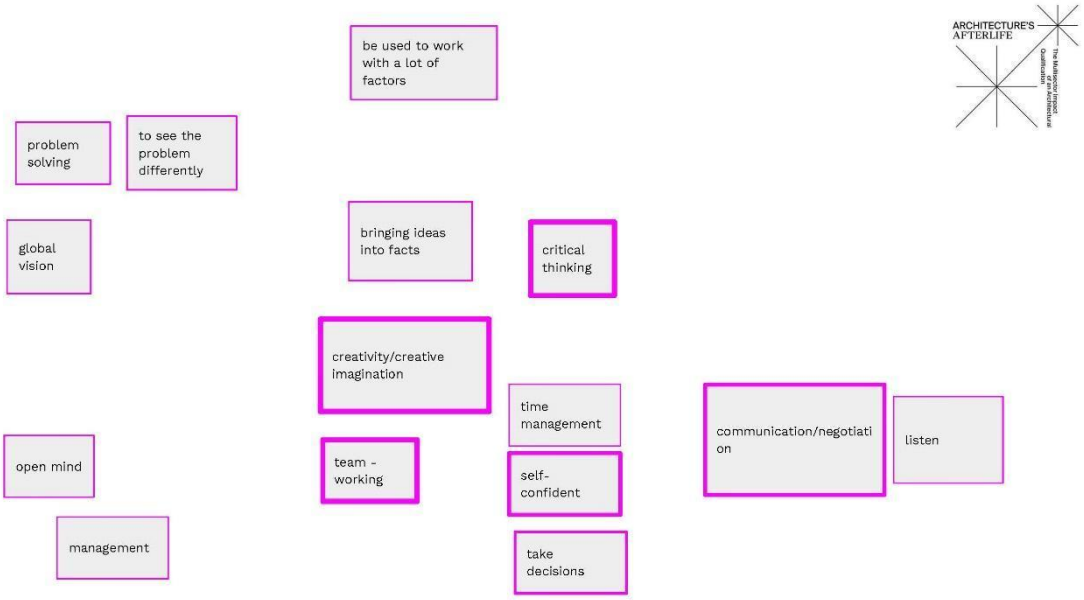


Fig. e.3: Principal competences from interviews Flow 1.

As we can see the most relevant competences are: critical thinking, creativity, team-working, being able to take decisions and communication. Management and an open mind are important too. In

case technical knowledge has been contemplated as a specific competence and is not in this diagram, but will be relevant for the final conclusions.

QUALITATIVE RESULTS FLOW 2

In interviews, one of the questions asked was: What are the competences that you acquired that are most important in your job and why? And the second one was: What did you take from your architectural education in your current job? And the answers were:

F2-1. “I think that in a design studio you talk in a very particular way. I think it's very important to learn **how to express yourself** in this kind of environment.”

“**Deal with very different inputs and very different data**. **collaborative work**, not so much teamwork. Collaborative because you need a lot of people to be involved in order to make it possible to work together”.

F2-2. “I still consider myself a designer, as someone who has a project to realise so I would say that one of the competencies that I treasured most is definitely to connect, **to communicate** a language, and **understand the needs** of the other part. I'm still striving every day to make it better and better.”

“When we work in the office, we think it is at the same time, not only like a professional task or **solving a problem** that usually it's to realise a project, but also we think that there is a part of research and a part of constant learning”

F2-3. “The two most important lessons I took into my profession is to try to **understand the complexity**. **Be flexible**, have a clear vision, but understand that it's not only you, you're not the centre of the world. I mean you. You can be convinced of that. **Listen to the other ones**. Try **to find conflict, consensus**, **and understand the complexity** as a positive thing. And the other element is always keep in mind that your built environment is a spatial thing and you have to take care of it.”

“**Being able to do strong analysis** turning all that information into a certain kind of conclusion and that conclusion, you try to turn it into space or to something which is a little bit more structured and that can be useful for many people. **Thinking in complexity**. Another thing is **Capacity of bringing ideas to facts**.”

F2-4. “The most important competence to this (real estate facilities) is to see “what it is” **teamwork, be analytic** to understand the process (...) to make quite fast decisions sometimes with not enough data or information, but you have to **decide very quickly**. I acquired these skills more from my high school education than from university.”

“Yes, it's very relevant, because it gave me really the best base to understand real estate properties. And also, not just architecture but these three years that I worked as an urbanist are very important, maybe more than the whole of the faculty.”

F2-5. “**Capacity to understand things, negotiating, versatility**, **multitasking**. Those abilities that come directly to you, it is not that there is a subject on how to dynamize or how to learn, but that throughout the learning process, without realising it, you know a lot about construction, you know a lot about resistance installations, structural materials, projects, but indirectly that process has given me more security and more ability to face things in the future. You are not afraid. And versatility. Well, I think I have also been struck by the ability to diversify our profession and in fact in

many architects who do many things there are people who are doing photography and people who are dedicated to interior design and furniture design."

Capacity to understand things, **negotiating**, **versatility**, **multitasking, ability to detect the needs**, **communication**, **analyse problems**, **instigator, capacity to learn, resilience.**

F2-6. "It's very basic, but that **architecture is beyond just buildings**, I think that was the most important. All the ideas behind, how it shaped society and how humans behave and all these kinds of things."
"I want to learn more about architectural design, history, contemporary architecture, and how all these things were happening rather than learning how to make technical drawings."

F2-7. "I think these things that I already mentioned that architecture is a **collective act**, that it's a reflection of a society. That it is an art that it's essence is tectonics. I think these are the most useful, definitely. These are the things that position me personally how to address the topic and in which perspective to work on the topic. Because of course, this is not the universal perspective, it's one of the possible approaches to architecture.

"I can only do that because of my architecture background that I have the capacity of consulting architects within designing as well and giving them ideas about how to design."

F2-8. "The ability to find work in archives, when I was a student, I needed to go to the archives to get information to make projects onto my research. I think it is important. teaching a student to be independent in finding information. Getting used to **getting information of any kind** from the historical side from archives. And also, to use magazines, to research a lot of universities not is not only being very good in showing your ideas is getting the way to collect your ideas to find the place where to find ideas."
"The tradition of the school is rooted in a tactical, in our approach to design which is more tactical. It deals more with tectonics and materials and less with the visual aspect for detection. So, let's say we had a lot of subjects regarding the materials, different materials, stone, wood, concrete, steel and so on. The qualities of those materials. How to design materiality, to the application of different materials and also one let's say quite high apostolate of that school is that the yes and so far, it actually is tectonics which I think this definitely had an impact on my personal view on architecture."

F2-9. "Knowledge of plants and planting I mean; I've been a gardener all my life being able to draw and visualise things for people. So, I spend a lot of time drawing pictures basically to help people see what I'm suggesting and to get them enthusiastic and get them to, you know, commission me to get moving forward. And then to be able to talk."
"When I attended university, I started in 1992. So, it's almost 30 years ago. And in the restoration, theory as a deeper space in the when you did the lab, this restoration lab, you almost started again with a little theory. [...] My teacher always told me that the best restoration is the one you don't recognize. Because you're working so well. Find a relation with what is still existing That is perfectly connected in the new and the old. Together, we can lead and should believe. Yes. I also taught restoration at university."

F2-10. "But in terms of **software skills**, that's super important just to have on your CV and also to just say, then, yeah, you can pick up work as soon as you get there. But **presentation skills** I think are a big one. (...)
I've been doing some more CAD training. I've been asked to look at some gardens, I'm drawing up a 3d vision of the planting plan, and I'm costing plants in another garden. And there's also some hardscape elements, which are very like architecture, its costs for retaining walls and paving and that sorts of thing. So, it's very similar to architecture.

F2-11. **Design skills** are interesting. I think it's really them just giving you a kind of toolkit for approaching designs in certain ways and kind of getting into designs. I think also, they do teach you very well to research projects. **Making decisions**. That's an interesting one. Yes, I think that's something you learned, either I don't think, well, my architectural education probably did not prepare me for that. I think that's something that's developed in the studio.

[No specific answer.]

F2-12. I think especially about communication**,** because I think in architecture school, they train you to **make something very complex seem very simple**. And you **communicate**, it's in a very graphic way. (...) it triggers your **spatial thinking and analytical thinking** into this very problem solution, **way of looking** at things. (...) we can think in a very spatial way, but then translating your spatial thinking into something that is understandable for others, that's very difficult, especially when others don't have the spatial thinking. abilities.

“When I graduated, I felt like stepping into the work fields didn't match with my views on what it means to be an architect in society. Internships are quite hard. It doesn't pay quite well.”

F2-13. And the sort of skills that I need at the moment are around dealing with sort of six or seven different projects at the same time, which all tend to be different scales, different locations, different clients. And I think the way that you're trained to pick up any situation and make sense out of it and create a project, I think is something that is rooted in architecture.

“I think generally, as an architect, you're trained **to deal with many complex situations**. At the same time. I think the fact that the training includes not only conceptual thinking and sound planning and sort of urban thinking, but also construction, detail, design, legal issues, business issues, I think, the way that you're trained to deal with many complex issues together, I think, sets you up to take on many different roles.”

If we represent it in a graphic diagram, we can see the most relevant competences for those architects that work in the construction field and in other fields.

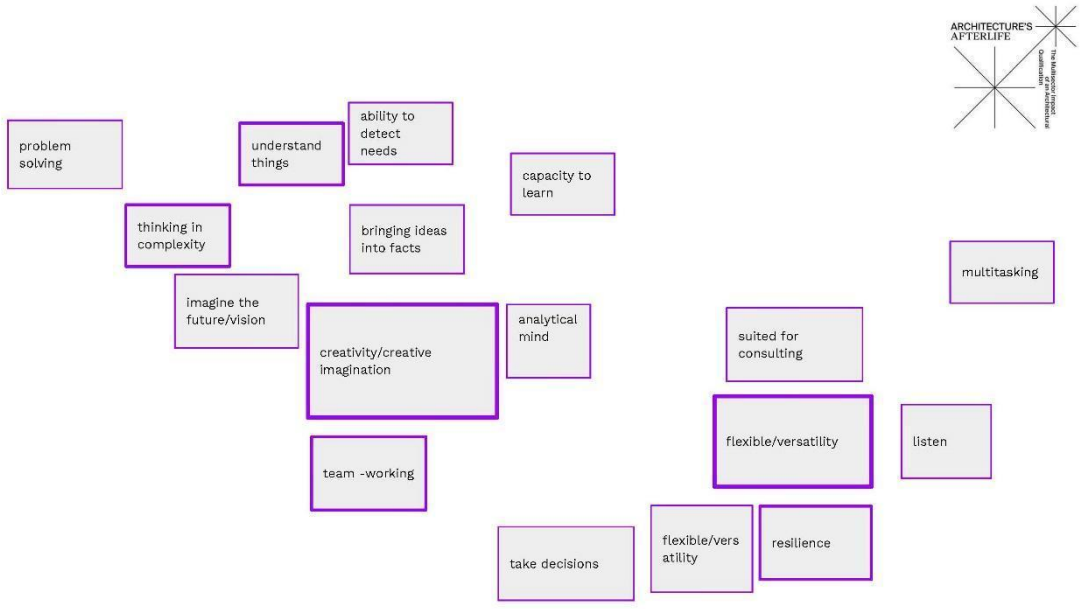


Fig. e.4: Principal competences from the interviews Flow 2.

In this **case creativity, team-working, thinking in a complex way, and being flexible**. What we can see is that different competences appear but most of them are common. So, if we put together all of them we can have a map with the competences that are valuable for the construction industry.

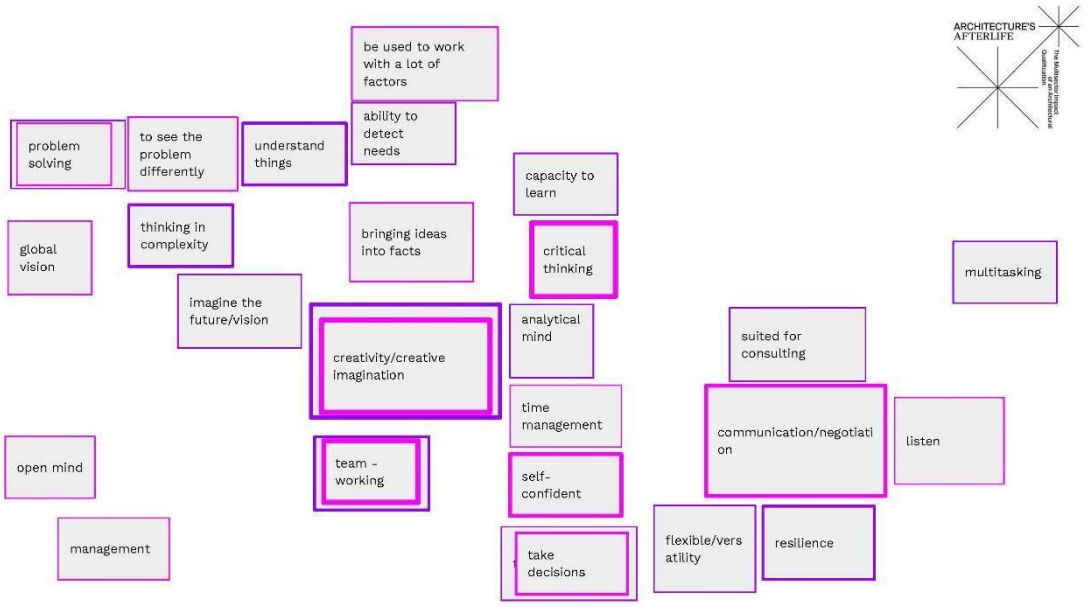


Fig. e.5: Principal competences from the interviews: Flow 1 and Flow .

How to become an Architect in the EU

An analysis of the routes that a student has to follow to become an architect in the countries participating in this project gives an idea of the diversity and the origin of this diversity of training.

On the one hand, not all countries require university entrance exams. While Croatia, Spain and Spain require a certain qualification and hold national exams for university entrance, in the United Kingdom, the Netherlands and Italy they are not necessary. On the other hand, access to the profession of architect is not guaranteed by the graduate qualification and the duration of these studies ranges from 3 to 5 years. In all countries it is necessary to study for a master's degree in order to enter the profession. Moreover, in some countries such as the Netherlands, the United Kingdom and Croatia, an internship or work experience is compulsory to enter the profession.

And as a consequence of specific laws linked to the professional associations, the competences granted by the training are diverse. In some countries, professionalisation does not depend on the university, but is granted by "state examinations", as in Italy and UK, as opposed to Croatia, the Netherlands, and Spain, where the university is the one that guarantees access to the practice of the profession.

CONCLUSIONS WP4E: BETWEEN GENERALITY AND SPECIALISATION

In the face of all this diversity, what this report offers is a joint vision of the competences that architects think they have acquired and which are demanded by society, showing that despite the fact that the training trajectories are very different, the competences are similar.

Thus, as can be seen in the diagrams resulting from the qualitative analysis, architects who are engaged in the professional practice of building construction or urban spaces consider that the most important competencies are: thinking, creativity, team-working, being able to make decisions and communication. Management and an open mind are important too. It is noted that there is a need for technical, legal and economic knowledge.

Whereas those who are engaged in building construction, but complement it with other activities, do not put so much emphasis on these aspects - probably because this is not their main activity - and consider that the most important competencies are: creativity, team-working, thinking in a complex way, and being flexible.

And these results show that there are two different attitudes towards the training of architects: specialisation and generalisation. Those who defend specialisation in order to respond to the more concrete and specific demands of a certain sector of the profession, linked to construction: the use of computer programmes, BIM, knowledge of the needs of the construction market, legal and technical regulations, everything that improves the service that an architect can offer in the field of construction, and the defence of the generalist architect, to train an architect with a more humanistic training that allows him/her to respond to other social needs less linked to the construction of space. Thus, between these two visions, the solution can probably be found in the training that can be acquired through masters' degrees. Architecture graduates should continue to be generalists in order to be able to specialise at the end of their training to adapt to the demands of society.

WP4F

PEDAGOGIC IMPACT OF THE STUDY FOR HE CURRICULA: TRANS- AND INTERDISCIPLINARY CURRICULA

After the carrying out of the survey, in which 2,600 graduating students took part, qualitative research was done by way of interviews of graduating students in five European countries which revealed which skills they considered themselves to be better trained at and which skills were the most required.

Subsequently, a comparative analysis of architecture schools from five countries: Italy, Spain, Belgium, Croatia and the United Kingdom showed differences in the predominance of certain skills and after the analysis of each one of these schools, it can be observed that certain approaches to the study programme might be having an effect on the training of the students and should be reviewed in order to orientate this training – taking into account the soft skills which they consider most relevant – in order to respond adequately to the social requirements presented by present and future contexts.

INTRODUCTION

Once the data has been analysed, it is confirmed that the results are similar to a preliminary study, and that 38% of the architects surveyed are working in other professional activities away from the traditional understanding of architecture connected to the practice of construction of buildings “Fig. 1”. Subsequently, a qualitative study is initiated by way of semi-structured interviews to participants who are from the countries participating in the project: United Kingdom, Croatia, Italy, Belgium and Spain, as the number of responses was much more significant: 170,172,63,166 and 242 respectively.

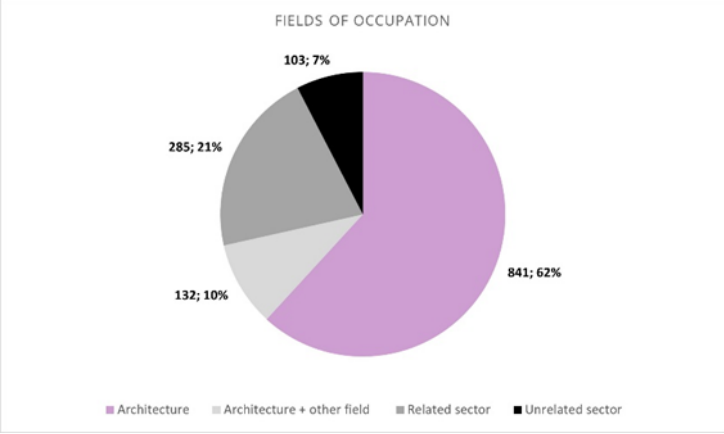


Fig. f.1. Percentages of graduates in architecture working in different occupations. Intermediate report carried out by Haydée De Loof as part of the Architecture´s Afterlife project.

The interviews were carried out online in English, by way of the online platforms-Teams and Zoom- and were transcribed to allow for detailed analysis. Subsequently all responses were shared on the -MIRO- virtual platform to facilitate the transversal analysis of the different questions. **(Described in WP3.)**

Finally, a quantitative and detailed qualitative study of the responses in the questionnaire from the graduates from the 6 schools participating in the study (Table 1) facilitates the establishment of differences between the schools and opens up an area of work leading to the improvement of transversal/soft skill training in the different schools. In the first part of this report the results focus on the quantitative analysis of the questionnaire, leaving the results of the qualitative analysis provided by the interviews of Flow 2 (WP3) in a second part of this report and the qualitative analysis of Flow 3 and Flow 4 for reports (WP4g Creative industries and WP4h Other sectors) respectively.

TABLE 1. INSTITUTIONS AND SCHOOLS WHICH PARTICIPATE IN THE AFTERLIFE PROJECT.

Royal College of Art (RCA	School of Architecture
University of Antwerp	School of Architecture
University of Zagreb	Faculty of Architecture
Politecnico di Torino	School of Architecture
Universitat Politècnica de València	School of Architecture ETSA-UPV
KU Leuven	Faculty of Architecture Sint-Lucas School

QUANTITATIVE RESULTS COMING FROM THE SURVEY

After the analysis of the questionnaire, firstly, a comparative study is carried out between the abilities and skills most used and required by the profession and the abilities and skills acquired. This comparison demonstrates that the graduates feel that the level of requirement of some of these competences or the necessity to be skilful in them is below the level of training acquired in their schools “Fig. 2”.

It may be observed that in the majority of skills acquired, the level is below the skills required, except in four of the skills where the graduates feel better trained than the labour market requires. These skills being: endurance, being passionate about architecture, taking an artistic approach, theory and History.

The skills in which a greater deficit is shown between the level acquired during training and the level of use in the world of work, and thus can be identified as areas where there is a lack of training for contemporary needs are: working with clients, business skills, project management, mediating or negotiating skills, digital skills, empathy and decision making (Table 2).

The skills most used in the profession, and to which respondents gave a response which was more frequent or equal to “Often” (4/5), were the following in order of greater to lesser use: digital skills, work ethic, collaboration skills, dealing with complexity, decision making, project management skills, constant learning and self-improvement, flexibility, determination, working with clients, endurance, spatial skills, being critical, dealing with uncertainty and design thinking.

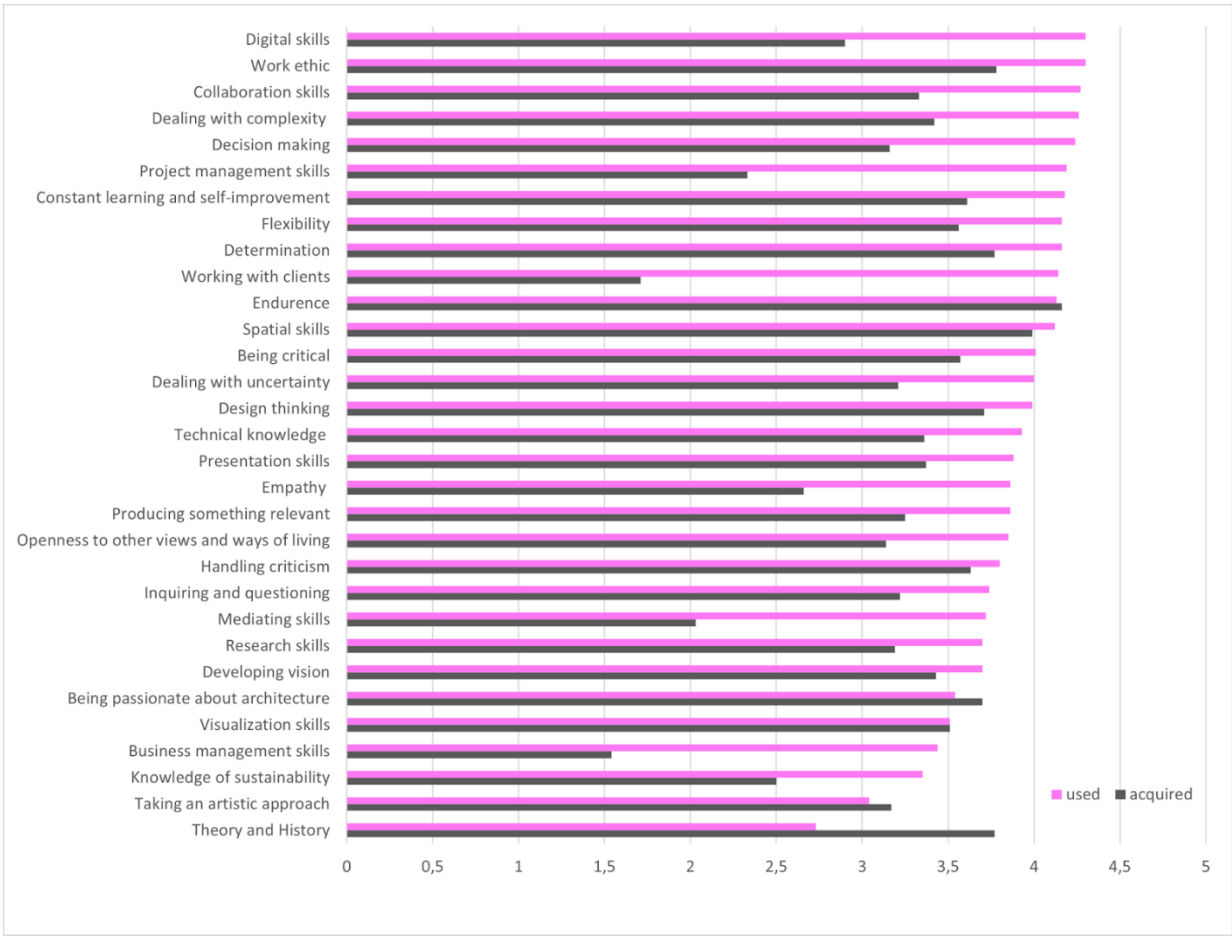


Fig. f.2: Bar chart showing acquired and used skills.

TABLE 2. SKILLS WHICH SHOW GREATER DIFFERENCE BETWEEN TRAINING (ACQUIRED) AND USE (USED) IN THE WORLD OF WORK.

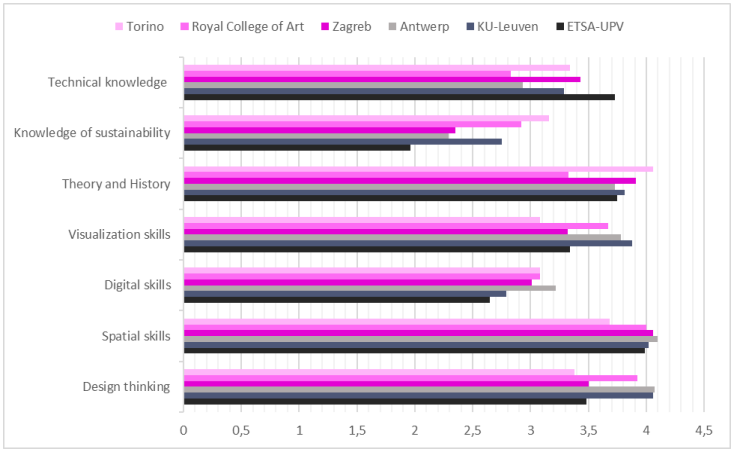
Decision making	**-1,08**
Empathy	-1,2
Digital skills	-1,4
Mediating skills	-1,69
Project management skills	-1,89
Business management skills	-1,9
Working with clients	-2,43

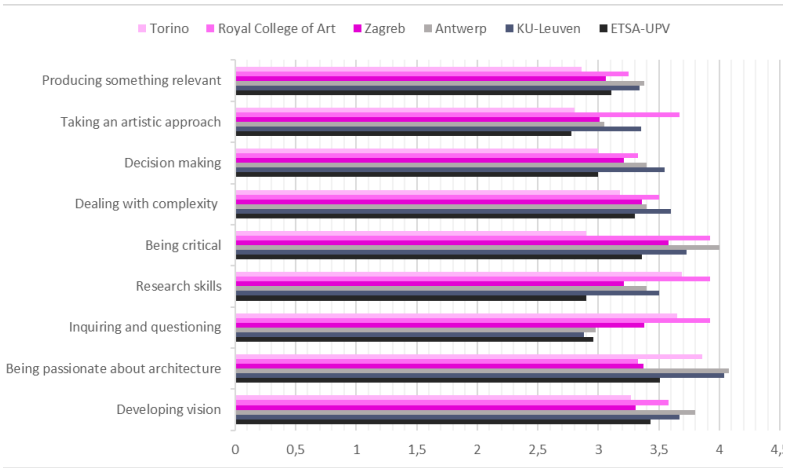
INFORMATION AS PER SCHOOL

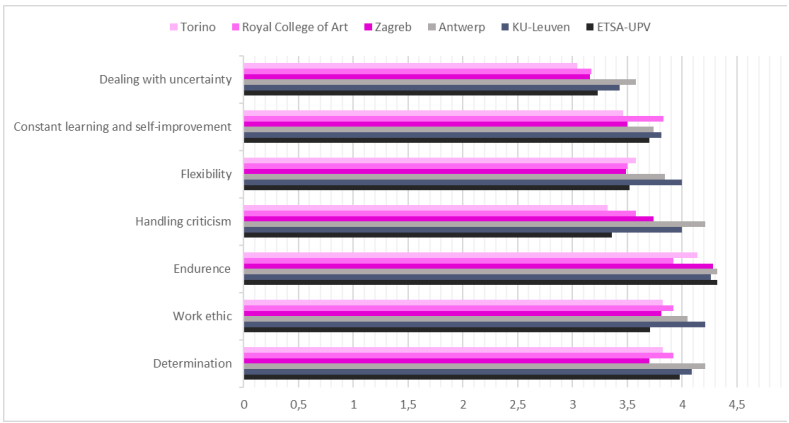
An analysis of each of the schools allows for a subsequent observation of the responses from each university/school with respect to the question “how well did you acquire...?”, and different signifiers were obtained which provided evidence of diversity in the training, which invited the hypothesis that carrying out more exhaustive research, analysing study programmes, curriculum and

methodologies, could provide keys which might be a guide to architecture schools for the training of architects towards the development of diverse transversal/soft skills.

Thus, the results manifested that the ETSA-UPV, Zagreb, Torino and KU-Leuven schools develop better technical training; with respect to sustainability, the Torino school, the Royal College of Art and KU-Leuven scored best; as for training in theory and history, Torino and Zagreb stand out; while in visual skills, KU-Leuven and Antwerp offered more training. The majority of schools offered better training in spatial abilities or endurance than in digital skills “Fig. 3”.







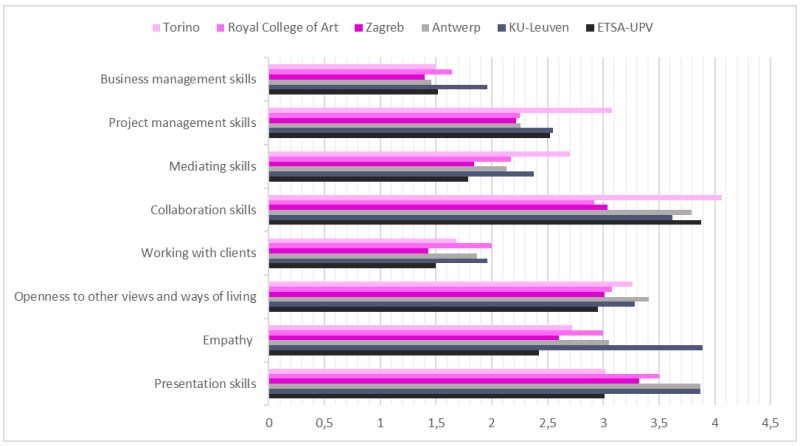


Fig. f.3: Bar chart showing acquired skills comparing the different indicated schools.

ASCERTAINING RELATIONSHIPS

With respect to the first general graph, in each skill we indicate the university which obtained the best response, and although this information only gives us a partial understanding, it serves the purposes of highlighting in which areas a school stands out and can be useful for future reviews of study programmes and as a guideline for the schools “Fig.4”. This information gives us an initial vision of the “type of training”, from the perception the graduates have formed regarding their training. In this way we can see that Torino stands out in developing, collaboration skills, project management skills and mediating skills, knowledge of sustainability and theory and History; RCA focuses on: constant learning and self-improvement, inquiring and questioning and research skills and taking an artistic approach, which would indicate that they probably work with more speculative projects, and are more geared towards work away from just the traditional professional practice. KU-Leuven fosters work ethic, empathy, dealing with complexity, decision making, flexibility, presentation skills and visualisation skills. While Antwerp stand out in: digital skills, spatial skills, design thinking, developing vision, being critical, dealing with uncertainty, handling criticism, openness to other views and ways of living, producing something relevant, being passionate about architecture and determination and ETSA-UPV score well in technical knowledge and endurance (Table 3).

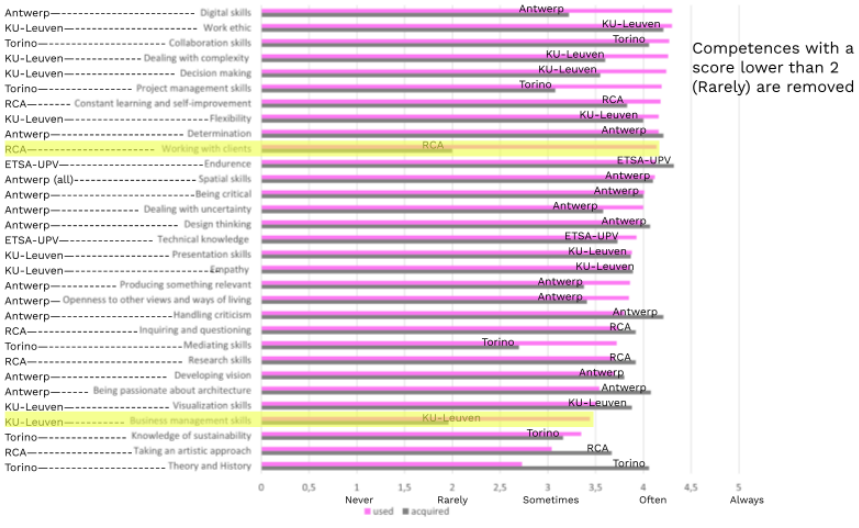


Fig. f.4: Bar chart showing acquired and used skills highlighting the school with the highest level of acquisition.

TABLE 3. GENERAL COMPARISON OF BEST ACQUISITION OF SKILLS

Torino	RCA	KU Leuven	UAntwerpen	ETSA-UPV
Collaboration skills	Constant learning and self-improvement	Work ethic	Digital skills	Technical knowledge
Project management skills	Inquiring and questioning	Empathy	Spatial Skills	Endurance
Mediating skills	Research skills	Dealing with complexity	Design thinking	
Knowledge of sustainability	Taking an artistic approach	Decision making	Developing vision	
Theory and History		Flexibility	Being critical	
		Presentation skills	Dealing with uncertainty	
		Visualisation skills	Handling criticism	
			Openness to other views and ways of living	
			Producing something relevant	
			Being passionate about architecture	
			Determination	

The architecture school of Zagreb, in comparison with the others, does not stand out in any of the observed skills. As mentioned above, this comparison offers only a partial perspective and what is most relevant to this study is the confirmation that the level of development of skills are diverse and different in each school and each one of them could reinforce their curriculum as appropriate.

An examination of the different curriculums reveals that there are significant differences- see annex on this report-, and deeper investigation would be necessary to determine where and how they affect training. For example, a comparison of the study programmes of Belgium and Spain- specifically, in this case, Valencia- reveals differences in the attention given to certain areas and subjects, with the observation that in Valencia more attention is given to technical aspects. In the

same way, the research carried out in the Architecture´s Afterlife project confirms that these differences are evident in comparisons between all the different schools taking part in the project “Fig.5”.

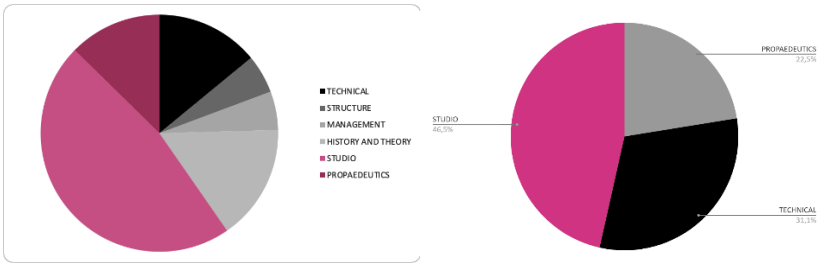


Fig. f.5: Pie chart comparing attention given to different study areas in Belgium: Antwerp (left) and Spain: Valencia (right) in architecture degree studies.

Qualitative Results from the in-depth Interviews

In interviews, one of the questions asked was: **What are the competences that you acquired that are most important in your job and why?** And the second one was: **What did you take from your architectural education in your current job?** And the answers were:

F2-1. “I think that in a design studio you talk in a very particular way. I think it's very important to learn **how to express yourself in this kind of environment.**”

“Deal with very different inputs and very different data. **collaborative work**, not so much teamwork. Collaborative because you need a lot of people to be involved in order to make it possible to work together”.

F2-2. “I still consider myself a designer, as someone who has a project to realise so I would say that one of the competencies that I treasured most is definitely to connect, t**o communicate a language, and understand the needs of the other part.** I'm still striving every day to make it better and better.”

“When we work in the office, we think it is at the same time, not only like a professional task or **solving a problem** that usually it's to realise a project, but also we think that there is a part of research and a part of constant learning”

F2-3. “The two most important lessons I took into my profession is to try to **understand the complexity**. **Be flexible,** have a **clear vision**, but understand that it's not only you, you're not the centre of the world. I mean you. You can be convinced of that. **Listen to the other ones**. Try to find conflict, consensus, and understand the complexity as a positive thing. And the other element is always keep in mind that your built environment is a spatial thing and you have to take care of it.”

“Being able to do **strong análisis turning all that information into a certain kind of conclusion** and that conclusion, you try to turn it into space or to something which is a little bit more structured and that can be useful for many people. **Thinking in complexity**. Another thing is **Capacity of bringing ideas to facts**.”

F2-4. “The most important competence to this (real estate facilities) is to see “what it is” **teamwork**, **be analytic** to understand the process (...) to make quite fast decisions sometimes with not enough data or information, but you have to **decide very quickly.** I acquired these skills more from my high school education than from university.”

“Yes, it's very relevant, because it gave me really the best base to understand real estate properties. And also, not just architecture but these three years that I worked as an urbanist are very important, maybe more than the whole of the faculty.”

F2-5. “Capacity to **understand things**, **negotiating**, **versatility**, **multitasking**. Those abilities that come directly to you, it is not that there is a subject on how to dynamize or how to learn, but that **throughout the learning process**, without realising it, you know a lot about construction, you know a lot about resistance installations, structural materials, projects, but indirectly that process has given me more security and more ability to face things in the future. You are not afraid. And **versatility**. Well, I think I have also been struck by the ability to diversify our profession and in fact in many architects who do many things there are people who are doing photography and people who are dedicated to interior design and furniture design.”

Capacity to understand things, negotiating, versatility, multitasking, ability to detect the needs, communication, analyse problems, instigator, capacity to learn, resilience

F2-6. “It's very basic, but that architecture is beyond just buildings, I think that was the most important. All the ideas behind, how it shaped society and how humans behave and all these kinds of things**.”**

“I want to learn more about architectural design, history, contemporary architecture, and how all these things were happening rather than learning how to make technical drawings.”

F2-7. **“I think these things that I already mentioned that architecture is a collective act, that it's a reflection of a society. That it is an art that its essence is tectonics. I think these are the most useful, definitely. These are the things that position me personally how to address the topic and in which perspective to work on the topic. Because of course, this is not the universal perspective, it's one of the possible approaches to architecture.**

“I can only do that because of my architecture background that I have the capacity of consulting architects within designing as well and giving them ideas about how to design.”

F2-8. **“The ability to find work in archives**, when I was a student, I needed to go to the archives to get information to make projects onto my research. I think it is important. teaching a student **to be independent in finding information**. Getting used to getting information of any kind from the historical side from archives. And also, to use magazines, to research a lot of universities not is not only being very good in showing your ideas is getting the way **to collect your ideas** to find the place where to find ideas.”

“The tradition of the school is rooted in a tactical, in our approach to design which is more tactical. **It deals more with tectonics and materials and less with the visual aspect** for detection. So, let's say we had **a lot of subjects regarding the materials**, different materials, stone, wood, concrete, steel and so on. The qualities of those materials. How to design materiality, to the application of different materials and also one let's say quite high apostolate of that school is that the yes and so far, it actually **is tectonics which I think this definitely had an impact on my personal view on architecture.**”

F2-9. “Knowledge of plants and planting I mean; I've been a gardener all my life being able **to draw and visualise things** for people. So, I spend a lot of time drawing pictures basically **to help people**

see what I'm suggesting and to get them enthusiastic and get them to, you know, commission me to get moving forward. And then to be able to talk."

"When I attended university, I started in 1992. So, it's almost 30 years ago. And in the restoration, theory as a deeper space in the when you did the lab, this restoration lab, you almost started again with a little theory. [...] My teacher always told me that the best restoration is the one you don't recognize. Because you're working so well. Find a relation with what is still existing That is perfectly connected in the new and the old. Together, we can lead and should believe Yes. I also taught restoration at university"

F2-10. **"But in terms of software skills, that's super important just to have on your CV and also to just say, then, yeah, you can pick up work as soon as you get there. But presentation skills I think are a big one. (...)**

I've been doing some more CAD training. I've been asked to look at some gardens, I'm drawing up a 3d vision of the planting plan, and I'm costing plants in another garden. And there's also some hardscape elements, which are very like architecture, its costs for retaining walls and paving and that sort of thing. So, it's very similar to architecture.

F2-11. **Design skills are interesting. I think it's really them just giving you a kind of toolkit for approaching designs in certain ways and kind of getting into designs. I think also, they do teach you very well to research projects. Making decisions. That's an interesting one. Yes, I think that's something you learned, either I don't think, well, my architectural education probably did not prepare me for that. I think that's something that's developed in the studio.**

[no specific answer]

F2-12. I think especially about communication, because I think in architecture school, **they train you to make something very complex seem very simple**. And you communicate, it's in a very graphic way. (...) it triggers your **spatial thinking** and **analytical thinking** into this very **problem solution, way of looking at things. (...)** we can think in a very spatial way, but then **translating your spatial thinking into something that is understandable for others**, that's very difficult, especially when others don't have the spatial thinking. abilities.

"When I graduated, I felt like stepping into the work fields didn't match with my views on what it means to be an architect in society. Internships are quite hard. It doesn't pay quite well."

F2-13. And the sort of skills that I need at the moment are around **dealing with sort of six or seven different projects at the same time**, which all tend to be different scales, different locations, different clients. And I think **the way that you're trained to pick up any situation and make sense out of it and create a project, I think is something that is rooted in architecture.**

"I think generally, as an architect, **you're trained to deal with many complex situations.** At the same time. I think the fact that the training includes not only conceptual thinking and sound planning and sort of urban thinking, but also construction, detail, design, legal issues, business issues, I think, **the way that you're trained to deal with many complex issues together, I think, sets you up to take on many different roles."**

If we represent it in a graphic diagram, we can see the most relevant competences for those architects that work in the construction field and in other fields.

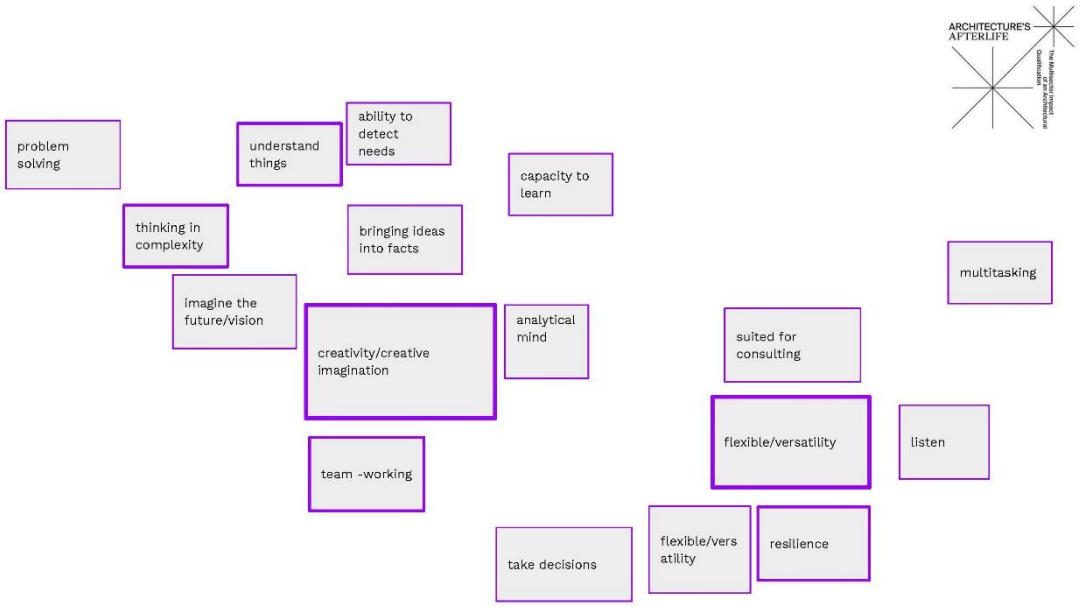


Fig. f.6: Diagram with the most relevant competences in Flow 2 from the interviews.

CONCLUSION WP4F

The teaching of architecture in Europe, despite the Bologna process which sought to homogenise the different training offered in architecture schools and established a parameter of equivalences by way of the ECTs, is still rich and diverse. These **results show that the training of an architect is tremendously broad,** and that **graduates are trained in transversal/soft skills which allow them to take on new areas of work and solve other types of problems** beyond the confines of the definition at the beginning of the article: *the art and technique of planning and designing buildings, spaces and structures, focussing on the design, creation, improvement and restoration of physical spaces according with human necessity*. **The field of work possibilities is opening up and professionals are appearing who demand skills linked to areas of social work, to consultancy in complex situations connected to the interpretation of situations, to the planning of business strategies and to questions of design which are not always limited to physical space**. Whether architects should be attentive to the demands of society, be able to respond to its needs, and learn to steer them towards the construction of a more sustainable world, but without forgetting where they came from, what their specific expertise is and in what direction their training should be heading.

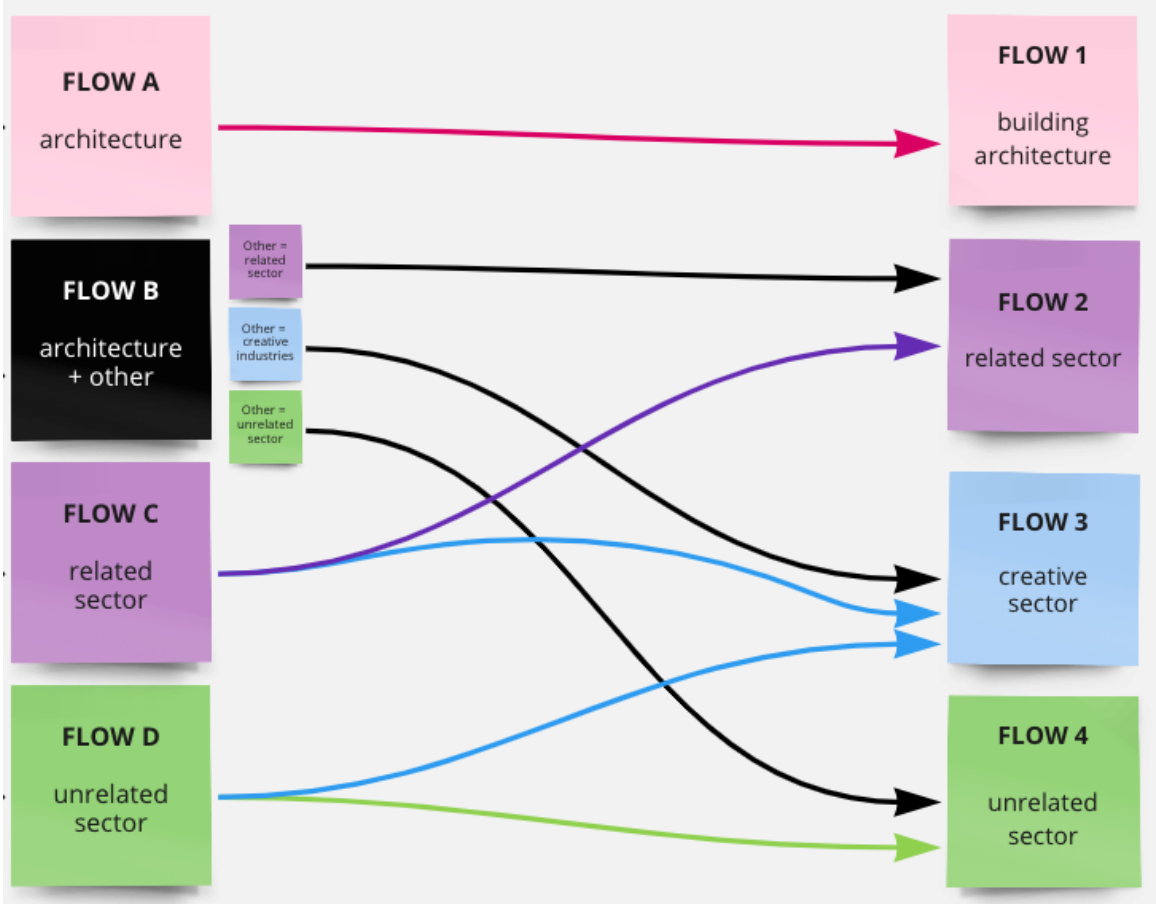
The results of the study suggest, then, the value of a redesigning of the teaching of architecture towards more flexibility, which would allow graduates to plan the acquisition of different skills according to the professional path that each architecture student sees as the one they should take.

WP4G

FORMULATION OF IMPACT UPON NON-CONSTRUCTION SECTORS: CREATIVE INDUSTRIES

QUANTITATIVE RESULTS COMING FROM THE SURVEY

From the result of the survey we can see how often architecture graduates need certain sets of competences varies according to field of occupation (Flows). Significant differences were found for skills and knowledge, processing information, personal competences, and cooperation



competences.

Flows A, B, C and D relate to Flow 1, 2, 3, 4 according to the scheme below.

RELATION BETWEEN THE FLOWS AS USED IN THE SURVEY (A, B, C, D) IN RELATION TO THE FLOWS AS IMPLEMENTED FOR THE REST OF THE AFTERLIFE RESEARCH, INCLUDING THE INTERVIEWS

FIG. G.1: THE FLOWS OF THE SURVEY HAVE BEEN FURTHER DEFINED AND DEVELOPED THROUGHOUT THE AFTERLIFE STUDY. THE DIAGRAM SHOWS THE RELATION BETWEEN THE DIFFERENT TYPES OF FLOWS REFERRED TO.

In order to study the results for those architecture graduates working in the creative sector (Flow 3) we will look into the survey responses of graduates working in related sectors (Flow C) and partially

to those combining architecture with other occupations (Flow B) of which both integrate those graduates working in the creative sector.

COMPARISON OF USE OF CERTAIN COMPETENCES ACCORDING TO FIELD OF OCCUPATION

How often do you use... (M)	Skills and knowledge (M)	Processing information (M)	Personal competence (M)	Cooperation competence (M)
Architecture (Flow A)	3,8634	3,8007	4,0481	4,0621
Architecture + other field (Flow B)	3,7951	3,8316	4,1414	4,1785
Related sector (Flow C)	3,5103	3,8368	4,2194	3,9880
Unrelated sector (Flow D)	2,8077	3,4744	4,1392	3,7179

FIG. G.2: TABLE FROM THE AFTERLIFE SURVEY SHOWING THE USE OF CERTAIN COMPETENCES ACCORDING TO FIELD OF OCCUPATION.

It is not surprising that skills and knowledge that are inherent to architecture are used more often by people who are working in architecture (Flow A/1), or are combining architecture with another field (Flow B). Processing information is used often in architecture, architecture + other fields, but also in related sectors (Flow C). It is less relevant for the unrelated sectors (Flow D). Personal competencies are important in all sectors, but especially in the related sectors. Cooperation competences are most frequently used by people who are combining architecture with another field.

SURVEY RESULTS ON HOW WELL SKILLS WERE ACQUIRED IN ARCHITECTURAL EDUCATION – FLOW C

	Mean	SD
Business management skills (e.g. managing a business, company, department)	1,62	0,722
Working with clients	1,9	0,907
Mediating skills (e.g. negotiations, conflict mediation,...)	2,1	0,945
Project management skills (e.g. time management, productivity,...)	2,5	1,133
Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	2,55	0,886
Empathy (e.g. being interested in the story of someone else)	2,75	1,134
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	2,86	1,063
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,18	0,999
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	3,2	1,039
Inquiring and questioning (e.g. investigating a brief for a project,...)	3,22	1,06
Openness to other views and ways of living	3,27	1,112
Decision making (e.g. taking a stance, making judgments,...)	3,28	1,016
Producing something relevant	3,3	0,949
Dealing with uncertainty / being able to function in conditions of uncertainty	3,38	1,118
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	3,42	0,852
Collaboration skills (e.g. team work)	3,45	1,002

Presentation skills (e.g. selling an idea, public speaking,...)	3,48	0,956
Developing vision	3,51	0,898
Dealing with complexity	3,62	0,929
Flexibility (e.g. adaptability, being open for change and renewal,...)	3,66	1,023
Visualisation skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	3,67	0,875
Being critical (e.g. taking critical distance from own work)	3,68	1,043
Constant learning and self-improvement	3,69	0,983
Theory and History (e.g. of architecture, art, culture, humanities,...)	3,73	0,755
Handling criticism	3,76	0,879
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	3,77	0,919
Being passionate about architecture	3,77	0,965
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	3,91	0,951
Work ethic (e.g. self-discipline, willingness to work hard,...)	3,93	0,998
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	4,14	0,773
Endurance (e.g. working under pressure, handling stress and deadlines,...)	4,25	0,9

FIG. G.3: RESULT OF THE AFTERLIFE SURVEY ON HOW WELL SKILLS WERE ACQUIRED DURING THE ARCHITECTURAL EDUCATION FOR THOSE CURRENTLY WORKING IN A RELATED SECTOR (INCLUDING THE CREATIVE SECTOR).

SURVEY RESULTS ON HOW OFTEN SKILL ARE USED IN THE CURRENT OCCUPATION – FLOW C

	Mean	SD
Theory and History (e.g. of architecture, art, culture, humanities,...)	2,82	1,217
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	2,93	1,188
Visualisation skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	3,2	1,199
Business management skills (e.g. managing a business, company, department)	3,36	1,367
Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	3,39	1,124
Being passionate about architecture	3,4	1,222
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	3,55	1,132
Developing vision	3,75	1,106
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	3,79	1,055
Producing something relevant	3,83	1,039
Empathy (e.g. being interested in the story of someone else)	3,84	0,9
Working with clients	3,84	1,118
Mediating skills (e.g. negotiations, conflict mediation,...)	3,85	0,998
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	3,88	0,999
Inquiring and questioning (e.g. investigating a brief for a project,...)	3,89	1,087
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,9	1,065
Handling criticism	3,9	0,848
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	3,91	1,044
Presentation skills (e.g. selling an idea, public speaking,...)	3,94	0,982
Openness to other views and ways of living	3,96	0,903
Being critical (e.g. taking critical distance from own work)	4,13	0,829
Dealing with uncertainty / being able to function in conditions of uncertainty	4,15	0,814
Endurance (e.g. working under pressure, handling stress and deadlines,...)	4,19	0,852

Project management skills (e.g. time management, productivity,...)	4,24	0,946
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	4,26	0,764
Flexibility (e.g. adaptability, being open for change and renewal,...)	4,26	0,72
Collaboration skills (e.g. team work)	4,27	0,862
Work ethic (e.g. self-discipline, willingness to work hard,...)	4,29	0,752
Constant learning and self-improvement	4,3	0,782
Decision making (e.g. taking a stance, making judgments,...)	4,31	0,792
Dealing with complexity	4,37	0,788

FIG. G.4: RESULT OF THE AFTERLIFE SURVEY ON OFTEN SKILLS ARE USED DURING THE CURRENT OCCUPATION FOR THOSE CURRENTLY WORKING IN A RELATED SECTOR (INCLUDING THE CREATIVE SECTOR).

SURVEY RESULTS ON THE MISMATCHES BETWEEN ACQUIRED AND USED SKILLS – FLOW C

	Mean	SD
Mismatch_working_with_clients	-1,9393	1,42118
Mismatch_project_management_skills	-1,7581	1,39328
Mismatch_mediating_skills	-1,7535	1,32893
Mismatch_business_management_skills	-1,7395	1,54891
Mismatch_emphaty	-1,0837	1,36117
Mismatch_digital_skills	-1,0741	1,40897
Mismatch_decision_making	-1,0234	1,2426
Mismatch_knowledge_of_sustainability	-0,8605	1,45302
Mismatch_collaboration_skills	-0,8131	1,28648
Mismatch_dealing_with_uncertainty	-0,7559	1,3376
Mismatch_dealing_with_complexity	-0,7277	1,03296
Mismatch_research_skills	-0,7056	1,41164
Mismatch_openess	-0,6822	1,38807
Mismatch_inquiring_and_questioning	-0,6573	1,28486
Mismatch_constant_learning_selfimprovement	-0,6121	1,16846
Mismatch_flexibility	-0,586	1,13598
Mismatch_producing_something_relevant	-0,5118	1,22808
Mismatch_presentation_skills	-0,4626	1,40956
Mismatch_being_critical	-0,4465	1,198
Mismatch_work_ethic	-0,3598	1,04656
Mismatch_determination	-0,3488	1,05644
Mismatch_developing_vision	-0,2488	1,25483
Mismatch_handeling_criticism	-0,1395	1,14348
Mismatch_technical_knowledge	-0,1302	1,38137
Mismatch_design_thinking	-0,0138	1,25639
Mismatch_endurance	0,0607	1,13462
Mismatch_spatial_skills	0,2581	1,15379
Mismatch_taking_artistic_approach	0,2837	1,41371
Mismatch_being_passionate	0,3972	1,30229
Mismatch_vizualisation_skills	0,4608	1,41408
Mismatch_theory_and_history	0,912	1,37643

FIG. G.5: RESULT OF THE AFTERLIFE SURVEY ON THE MISMATCHES BETWEEN ACQUIRED AND USED SKILLS FOR THOSE CURRENTLY WORKING IN A RELATED SECTOR (INCLUDING THE CREATIVE SECTOR).

Communicating with other people is the most frequent activity. Practical, executing work is also often carried out. Also, a lot of people consider their jobs as ‘helping others’. How often people carry out these activities differs according to their field. The activities for which statistical differences were found, are flagged with an asterisk.

COMPARISON OF FREQUENCY OF ACTIVITIES ACCORDING TO FIELD OF OCCUPATION

	Architecture (Flow A) (M)	Architecture + other field (Flow B) (M)	Related sector (Flow C) (M)	Unrelated sector (Flow D) (M)
Leading others*	3,33	3,66	3,53	3,58
Following orders and instructions	3,55	3,39	3,53	3,60
Practical, executing work*	4,00	3,91	3,43	3,81
Helping others*	3,56	3,64	3,77	3,81
Financial matters*	2,85	3,16	3,05	2,81
Managing the business, company, or department*	2,65	3,1	2,83	2,83
Artistic work (art) *	2,79	2,94	2,45	2,82
Developing new techniques or new ideas*	3,13	3,29	3,34	3,62
Selling products or services to consumers*	1,95	2,04	1,92	2,16
Giving training, education or guidance to others*	2,47	3,09	2,99	3,11
Creative work (being creative, searching for creative solutions,...) *	3,67	3,73	3,37	3,57
Communication with people within the business, company, or department	4,03	3,92	4,15	4,17
Communication with people outside the business, company, or department	3,81	3,77	3,80	3,69
Physical work, manual labour*	1,73	2,10	1,53	1,81
Taking care of, treating, or healing people	1,41	1,57	1,35	1,43
Taking care of, treating, or healing animals*	1,20	1,29	1,08	1,09
Outdoor work (working in gardens, forests or on the field) *	1,50	1,72	1,45	1,27
Working with or on machines*	1,61	1,81	1,43	1,64
Conducting and/or carrying out research*	2,12	2,69	2,81	2,30

Fig. g.6: Table from the Afterlife survey showing the frequency of certain activities according to field of occupation.

Qualitative Results from the in-depth Interviews

In the qualitative part of the studies, interviewees have been asked about the competences they feel they have acquired through their architectural education, and how the education could be improved. In the interviews, participants had been selected based on their current occupation in the creative sector (Flow 3). These were participants selected by the research teams from their international network and a selection of participants of the survey, who themselves selected to have an occupation in the "creative industry". Yet as the survey already managed to bring up, the distinction between being inside or outside of architecture and being in a field related, whether or not creative sector, shows to be highly blurred.

a. Skills acquired through AE

Replying to the question on what the interviewees believe they have acquired through their architectural education.

F3-01 "I think that what you need to work project-based is that you have something that is not really clear where you need to go in a way, because with a project, you start, but it's not always clear in which direction you will go. Of course, you make a plan and you set up a methodology, but there are still things that change on the way. And also, in the beginning of a project, you need to think, what you want to do, and there are some clearly, I can imagine in the beginning, a flou artistic, or a kind of thing that you need to define and that then needs some creativity. In a project often after a while, when you do more and more projects, there are some similarities that are coming, but you need to be kind of **resilient** to be able to... That it's not a process that is really clear, to go from A to Z but in a really clear way, but you need to be quite adaptive and flexible."

F3-02 "Yes. I think, because at the end, it's like a lot of time you are in contact with visual stuff no? Like you are some kind of a visual psychologist or something like that. Like you see. Some things you can read. A lot of things about, even just for example, just when you draw, when you are doing the project; the plans. When you see the drawings of the project you can even guess with that, you can read a lot of things about how much care it has for that project. If it has been done fast or with a lot of care. If it is super well thought. Or not in that detail. And, also when you go there, you can see if the construction process was nice or not nice, or they were very practical, like let's do like that because the market... If the contractor does it like to do this everything will be faster. It will be more economical. You can see all these things."

F3-03 "Uh, well, I, I think it's just this basic education that you get awareness of the space and, of the quality of architecture and everything. When mostly photography representative spaces or spaces that are designed, but, by let's say good or well-known architects, it's of course, crucial to kind of find dialogue with them and to, focus on the good and positive and quality parts of the project. And this is something that I after you finish at the architecture schools, you are of course educated through your education, both through designing and everything that we learn in school, and also the history of architecture and contemporary architecture, you can kind of get this awareness of the space of the good quality of the projects and stuff like this. And this is something that you can, like let's say, naturally use and, combine it with the talent for photography, let's call it the talent. Yeah. So this is something that kind of, uh, makes a difference between me and some other photographer who try to photograph architecture, but don't have an education or skills that he, or she can use."

F3-04 " [...] self-made job, not a normal job in the sense that we make a proposal, we apply. [...] You understand the process of the construction of a building. You understand the difficulties and

complexity behind it. You understand more than a usual observer. You understand the tons of irons that are on the floor and how they will keep the construction up. (...) You also understand the work of the people involved. It is in the transformation phase. (...) The need to "engage in exchange."

F3-05 "I think there are many things that are connected. When you draw, you draw what you have in mind, but there is a gap between the drawing and reality, right? And with the computer, there is no more gap because what you see in the drawings is what you will do. It's an imagination. It could also be very accurate, but it's a drawing, it's something that exists on paper. Right now you pretend to, let's see to your clients exactly what [the project] will look like, and you don't let your brain work. It's easy. It's like, it's something you are going to... - in Italian we say 'pappa pronto' - when the meat is ready, you have to go and sit on the table and eat. There is no, you are not cooking. The drawing is the cooking."

"In some ways it [history and theory course] opened my mind. Architecture is connected with the living. I remember one of the first lessons in architecture I had and my professor spoke about Frank Lloyd Wright. And, Frank Lloyd Wright puts in the centre of this architecture: in Italian we say the 'focolare domestico', it is where you put the fire. And a lot of the time where you put the fire is the kitchen, because it's where you cook, where you live, where you share. It is the most important place in the house. And so, this is what I remember. What's in my mind right now."

F3-06 Comparing design and architecture school: "When you choose to become an architect, they train you in the history of architecture, theory of architecture, as well as technical fields in design." [...]

"I wasn't trained, I was trained on my mistakes and I believe that this is equally important than the design itself. Many times I came with half-baked solutions to a meeting or a group, and we figured it out together - either with colleagues or with clients - how to... Obviously you can't count on that meeting and say, okay, I have a half-baked solution. You come, and then you bring the ambience or the talk to a level where we can bring it or build it all together. I strongly believe that communication or trade, **diplomatics are of huge importance.**

"So I was still part of "**Platforma 9,81**", which is an architectural NGO, here in Croatia. Platforma grew up as an **architectural student group**. And it was organised by pretty young architects. Eventually all the different tasks were arranged or organised by Platforma going from some sort of a low level research, mappings and stuff to parties with lectures by guest architects. I would say that a lot of things that are part of my general framework on how design work should be done now **was built through those talks**."

F3-07 "Well, this is what we do. Somebody comes to us with a problem and we start to sort it out, but in the end, maybe while we are sorting it out... I mean, sometimes we see the problem differently, or we see a different problem. We see a different problem, or we see the problem differently. So in the end we somehow have to combine or introduce our worries. And that is interesting. It's difficult sometimes, but it's all about communication.
I can handle so many skills, but at the same time, also a lot of responsibility, because then you have to be very sure about what, what you want to do, what you, you are doing, what you are looking for.
[...] communication, design way of thinking, way of looking at things, the way that you would approach the situation, the difficulties, the joy of doing things, the opportunity of meeting people, exchange with different kind of cultures and peoples and countries and projects and institutions, and how do you really relate yourself with each one of these situations because they are also different.
Training, both of course. Having had any architecture education. I think it's the most brilliant education that you can have because it really gives you a sense of the world and kind of

connection with things that I don't think any other kind of education allows you or gives you that broad sense.
And that made me think about, you know, even things that you don't really appreciate so much, you can end up to be very good, just because, you know, just because you do think because you do things differently. I think because you bring into the subject a fresh perspective or, or at least one or two small details that make a huge difference.

F3-08 And, and in that sense, as an architect, you're able to deal with these kinds of things, because if you want to just deal with it, everything at once. So, and, and in that sense, you also, when you come into these other fields, it's something for me that is very, very clear, like, and very like, okay, now I deal with it like that. And I do feel that some people where I work with them really don't have that kind of dealing with complex problems. And they just go in head first and it will be fixed in the end, but they lose themselves. And that this is really a skill. Yeah. That's very, very valuable, like for sure.
Yeah, they learned me how these big teams and, and how to manage like these kind of business skills just by being there and seeing how they dealt with very, very complex things and being with a lot of people gave me a better idea about how you could deal with this kind of complex structures and, and a lot of opinions and how to deal with this.

F3-09 And now, I have a lot of freedom to choose what I want to do. So sometimes I think about some improvements I can make. Like I see different departments doing their work incorrectly or very slowly. So I, so I like to interrupt them and I try to change processes in our company. And I'm not sure if I actually, it would also be possible in architecture because architecture studios are very, how would I say casual about everything? So you don't really have to stay within your boundaries, but now it's working for me much better. And the main thing I'm using is on my everyday time I'm using my skills of grasshopper. So it's a lot about thinking parametrically and automatization.
I wanted to learn parametric design because I thought why not? I can spend one semester in the university and do this project just for fun. And that's it. Then I returned to architecture.

F3-10 And we noticed that people were doing photo montages, images of things that haven't been built yet. And we started doing that and that turned out to be an extremely successful part of the business. And, you know, for the next 10 or 12 years, that was the mainstay of what we were doing. So I was still teaching, I was doing a very small amount of architecture, but mainly what we were doing was photomontage work and, and writing reports about that.

F3-11 Being quite theoretical means that it is not that updated with what is happening currently anywhere in the world. So let's say that there is somewhere maybe 20 years behind 15 years behind, which is quite a lot. It's quite good. They do teach you how to have the basis of a good, critical thinking and how to question things, which is really important because, well, if you ask the right questions, you're going to find the right answers. Right? So, but, and well, it's quite generic as I tend to find that most of the schools are up to something that is a bit more specialised to be honest for what I'm doing now or what I'm doing in XXX. I don't think besides the traditional things that you, I dunno, you, well, you learn, how to dimension a circulation or how stage needs to be, or I dunno, things that are really practical, nothing related to the field.
I think it is, yeah, definitely something I think it has to do with, with what you're taught doing studios. So when you have to present your work, you need to sell something. It's like, you need to present something during an elevator five minutes, travel time. Right. So, and that makes you want to understand everything as fast as possible and as best as possible. So I think this is how it has to do with that.

F3-12 Probably the most important skill is organisation of time, and also the different aspects of projects. I mean, given the construction installation now, all that, that you need to put together in architecture. And so I think that that's the most important part. And also during our study and education, we had some projects that we were dealt in a groups and then needed to go through all the phases. I mean, it was not only, it wasn't always just the like planning on some basic phase

through some projects, we went through the installations and given the project gets to the phase that it could be given to the construction site and then be made alive.

b. To be improved in AE

Replying to the question on what the interviewees see could be improved in architectural education.

F3-01 And I think they could be maybe a bit more ambitious and maybe a bit more, even... That we could think more on what students could learn, to make a subsidy (application) or a "dossier" to see what are all these - maybe even a simplified one. But I think to learn how... what are the prices of projects and to learn it already. I think it it's quite good to already have this in the education because, some people say it's better that you learn this in your 'stage' [internship] and that you learn this later, but then there are also people that could actually come out of the study and also... I see it more and more that there are some architects after the two years [of internship] that start to have their own office. And actually, if the study was not so de-connected from the reality, I think there would be a better transition. And you could learn already things in your study.
A T-profile, haven't you heard of it? It comes from the letter T. And that means that you have kinda you a global view [holds her hand horizontal]. But you also specify in really specific disciplines [moves her fingers vertically]. So things like that you can easily work with other disciplines. So the letter T And that means you have the horizontal and the vertical line.
So you go in deepness a bit [gestures vertical movement], on some topics and you have the [gestures horizontally] so you have the horizon over different disciplines, to see what is going on. This means that you can really work with different disciplines. And actually, that's the thing that in my studies, we learn a lot, that is to work also with other disciplines and together and, um, and to work on the edges of disciplines.

F3-02 Yes. Well the competencies I need... I need some competencies from architecture and, like in all the works, I need a lot of competencies also from life. No, I mean there is a part that you should understand the projects, know which photography you should take. Also sure. That architecture give me a lot of tools for composition and also for empathize with the architects. I like, when they are telling their work, I can understand very good even how they feel know about the projects. And I think that's important because that way I feel more respect for the work, because I know it's hard to arrive there, to achieve these results. And on the other hand, also there are others no? About how the relations in the work, how to achieve customers or how to promote yourself or with clients relations; you like and which ones you don't like."
"I mean that at university you are like in some kind of box. And you study, you acquire a lot of knowledges, but you don't know how to develop them in life. Not even if you are... you can be a super architect at the university, like make super good projects. But if you go outside and you don't know how to achieve customers or how to be passionate with people or how to deal (with them). I think that that are skills that are very important to build good relations with people.

F3-04 Yeah, absolutely. And so that's geography, human geography, and also more like political geography, because those are disciplines that I'm approaching now by reading books and meeting geographers and asking them to give me information, anthropology that I think is also relevant, but also economics. I think it's quite important to understand the mechanism of financing.
And I mean, you really need to have a very good job if you don't want to be pushed out from the city center. And all this area going from the center to the airport, has been completely built by the private sector. And it's not under control from the municipality. And that, I think it's the problem of our urban world since I think the eighties. That the public sector doesn't exist anymore. There's no directions given and so they could. So yeah, so I think we need some more competencies, or what other that I think would be actually much more interesting is 'engage in exchange'.

F3-07 We see a different problem, or we see the problem differently. So in the end we somehow have to combine or introduce our worries. And that, that is interesting. It's difficult sometimes, but it's all about communication. And that is one of the skills that I think that in the university should be promoted. And going a bit backward; **communication**. That is something that I've not learned at university at all, because nobody asked me about anything, but I've had to learn with experience. And I think it's the key for almost everything; is to be able to communicate the way you see things, the way you want to sort it out the way you identify the problem: communication. It's a huge issue because otherwise we can say whatever nobody understands us. So who cares? I mean, then it's a waste of time and we have to also learn to listen. That is part of the communication is to communicate and to listen. And that is something that I had to make the effort because I was not good at that at all. I mean, I was very shy and not only shy, I was not confident enough. Shy and confidence, one thing comes with the other anyway. But I forced myself to, because I wanted to say things. So I forced myself to... I put myself into a certain kind of situations that I, it was very frightening for me, but I put myself into those situations deliberately just to face it and to improve. And then, yeah. And then now I talk a lot.

F3-09 I don't like, I think the skills I missed are the ones connected to**,** I still feel like I didn't learn to design beautiful houses, but I think it's probably my fault more than the carrier's fault or the university's fault. I think they, it was, I would choose maybe different priorities differently divide my time during the studies to spend more time designing and less time like check in the other boxes for other subjects**.**

F3-11 I would like to think so, but I, well, I, architecture school doesn't really teach you how to do that [being entrepreneurial]. Right? Not at this moment. I think from now onwards, they are actually implementing that, which is great. I am not that knowledgeable in that way, but I, I am quite happy because I know people who who know more than the, than well than I know. So I do have help with that, but otherwise I would've loved to learn more about this for them to teach me more about this.

F3-12
For me, **I think the architecture faculty was okay, but it could have been better**. I mean, because we didn't have some studies about the presentation and things. **I mean, we were just asked to present our projects, but without any preparations or the education of how to do it better, it was just laid in front of us and done, as you can. I think that that should have been better** because today I saw the presentation and the communication is the most important part in this job. Mm-Hmm <affirmative> even with the investors and everyone it's, the communication is really big part of this job. I think.
I think I would like it to have more of a connection to the real world. <Laugh> I mean, real architecture world that I see now and that I do on my job, because it was, everything was just on paper and just do whatever you like or you think looks or works fine, but work being now in the job, I see that everything is under many regulations and rules, so it's kind of not nothing the balance, the things that we do and are about to do during our education and now where we come into some frames that we need to fit in.

c. Coding of skills

If we represent it in a graphic diagram the skills and elements the interviewees mentioned, we can see the most relevant skills for those architects that work in the creative sector, such as: Interior architect, urban designer, professor in scenography, (architectural) photographer, editor, creative director, researcher, artistic director, designer, architectural lighting designer, event organisation and design, 3D graphic designer in glass features, consultancy, venue designer and graphic designer.

DIAGRAM OF THE CODING OF THE INTERVIEWS FOR FLOW 3

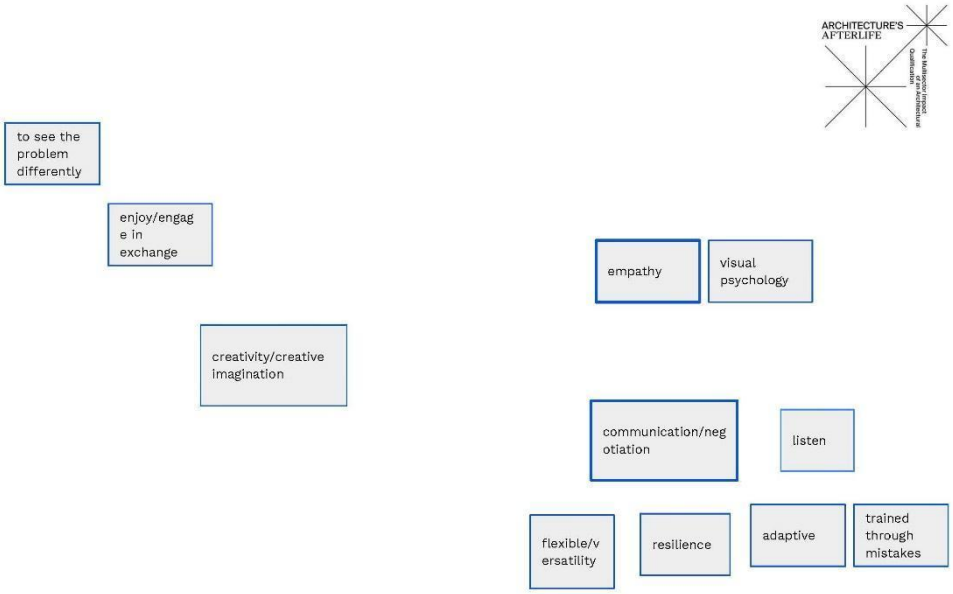


FIG. 7: THE RESULTS OF THE CODING EXERCISE CONCERNING THE SKILLS ADDRESSED BY THE INTERVIEWEES OF FLOW 3, ARCHITECTS WORKING IN THE CREATIVE SECTOR.

CONCLUSIONS WP4G

The field of work possibilities is opening up and as part of the broad options lying ahead for architecture graduates, the creative sector shows to be an interesting and relevant field (often combined with building architecture). Elements the interviewed architecture graduates working in the creative sector expressed in addition to -and in line with- the results of the survey

Highly acquired skills as addressed by the survey: endurance, spatial skills, work ethic and determination. These are followed by design thinking, theory & history, handling criticism, flexibility, constant learning & self-improvement, being passionate about architecture, and visualisation skills.

From the interviews:

- Building a "T-profile".
- Being able to "smell architecture" relating to a way of looking as a way of complex and layered understanding. An eternal skill of learning more -eternal learning- based on curiosity and drive to improve.
- A way of seeing things. Seeing things differently.
- To be driven, to undertake action, to have a vision.
- Find ways to make things work better.
- Opening up one self to creative life.

Yet, as the study highlights there is space for improvement of the architectural education:

- **Mismatches as addressed by the survey:** bussines, project management, mediating skills, working with clients and digital skills.

- **The interviewees address:**
    - University study as being in a box, disconnected from several challenges from the real world. Gap between school and practice. More connection to the real world.
    - Need for exchange, improving of communication skills.
    - Architecture Education as too broad, and needing to be broad.
    - Looking for more ways to understand the mechanisms behind architecture and urbanism.
    - Importance of History and theory.
    - Would like more practical training. More design training.
    - Importance of communication, listening and diplomacy (see soft skills).
    - It is Important to learn to think for oneself, to have a philosophical approach.
    - Lack of entrepreneurial management.
    - The necessity of 'up to date' professors.
    - More space for anthropology.
    - Confidence tools, to build trust.

The results of the study suggest, then, the value of a redesigning of the teaching of architecture towards more flexibility, which would allow graduates to plan the acquisition of different skills according to the professional path that each architecture student sees as the one they should take.

WP4H
FORMULATION OF IMPACT UPON OTHER SECTORS

Trained to synthesise complexity, architects are proving to be fundamental players in designing solutions to address crises such as global warming, human displacement, and pandemics. The quest for sustainable futures have prompted new discussions on the fluid boundaries of the architecture discipline – its disciplinarity vis-à-vis its interdisciplinarity – often favouring a broad understanding of the architect's role "*as integrator, professional generalist, and practical idealist"* as Rachel Armstrong has recently put it.[2] *Architecture's Afterlife: The Multi-sector impact of an architectural qualification* explores the relationships between the disciplinarity of architecture and its interdisciplinarity as a way to adapt architecture to societal changes, thus responding to systemic crises.[3] The result of the quantitative and qualitative results of *Architecture's Afterlife* offers an alternative to this binary view, turning it into a relationship of complementarity. The interdisciplinarity of architecture is a necessary means through which architecture constantly redefines itself and adapts to resilient futures.

INTRODUCTION

Architecture's Afterlife Questionnaire asserts that 38% of architecture graduates are working exclusively or partially in sectors other than architecture. Of these, the 7% work exclusively in "other sectors." Yet, when asked this 7% whether and when they left architecture, only a small percentage of the respondents answered that they indeed left architecture. When asked to define their current occupation, they often required lengthy descriptions. Their definition of what is architecture and what it means to be an architect often fell outside traditional understandings of the profession such as, simply, 'the design of buildings'. At the same time, competency mapping outlines an 'architectural method'–specifically architectural but interdisciplinary in nature–by which architecture graduates address complexity.

Architecture's Afterlife interviews have defied any rigid categorization, supporting the argument that the mentioned 7% is not "other than architecture," or at least not completely. This percentage is understood as practitioners whose work is complementary, even instrumental to architecture. It is instrumental for architecture to change and adapt to current demands, and it becomes the space where these changes are most required. This is a point readily recognized by architectural educators, albeit disputed in effectual 'practice' and vague in the perception of architecture as a discipline to those 'outside' of it. As stated by the "Principles and Practices of Architectural

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[2] Rachel Armstrong, 'Confronting the Unbelievable, on Designing in Unreal Times' (lecture, KU Leuven, Belgium, May 13, 2020), accessed October 6, 2022, https://www.blog-archkuleuven.be/architecture/2020/05/02/online-lecture-by-rachel-armstrong-confronting-the-unbelievable-on-designing-in-unreal-times-1305/

[3] *Architecture's Afterlife: The Multi-sector impact of an architectural qualification* was sponsored by the Erasmus+ Program and it ran from September 2019 to December 2022. The proposal was submitted by Dr. Harriet Harriss (Principal Investigator, Royal College of Art); Dr. Michela Barosio (Polytechnic of Turin); Dag Boutsen (KU Leuven); Dr. Johan De Walsche (University of Antwerp); Dr. Mia Roth Cerina (University of Zagreb); Dr. Carla Sentieri Omarrementeria (Polytechnic University of Valencia). The research project was completed by the above and Dr. Federica Vannucchi (Royal College of Art); Andrea Čeko (University of Zagreb); Dr. Haydée De Loof (Universiteit Antwerpen); Santiago Gomes (Polytechnic of Turin); Dr. Hanne Van Reusel (KU Leuven). *Architecture's Afterlife: The Multi-sector impact of an architectural qualification* accessed October 6, 2022, https://erasmus-plus.ec.europa.eu/projects/search/details/2019-1-UK01-KA203-062062

Education: A Position Paper of the EAAE Education Academy" (2018), "architecture students are schooled in the ability to pose questions not just answers, thereby embracing complexity and uncertainty, rather than resisting it."[4] *Architecture's Afterlife* demonstrates that what is commonly understood as 'other than architecture' defines a necessary space of inquiry and adaptation for architecture to respond to contemporary shared challenges, thus to make architecture current.

QUANTITATIVE RESULTS COMING FROM THE SURVEY

From the result of the survey we can see how often architecture graduates need these sets of competences varies according to field of occupation (WP1). Significant differences were found for skills and knowledge, processing information, personal competences, and cooperation competences.

How often do you use... (*M*)	Skills and knowledge (*M*)	Processing information (*M*)	Personal competence (*M*)	Cooperation competence (*M*)
Architecture (Flow 1)	3,8634	3,8007	4,0481	4,0621
Architecture + other field (Flow 2)	3,7951	3,8316	4,1414	4,1785
Related sector (Flow 3)	3,5103	3,8368	4,2194	3,9880
Unrelated sector (Flow 4)	2,8077	3,4744	4,1392	3,7179

It is not surprising that skills and knowledge that are inherent to architecture are used more often by people who are working in architecture, or are combining architecture with another field. Processing information is used often in architecture, architecture + other fields, but also in related sectors. It is less relevant for the unrelated sectors. Personal competencies are important in all sectors, but especially in the related sectors. Cooperation competences are most frequently used by people who are combining architecture with another field.

FLOW 4

	Mean	**SD**
Business management skills (e.g. managing a business, company, department)	1,48	0,707
Working with clients	1,8	0,922
Mediating skills (e.g. negotiations, conflict mediation,...)	2,04	1,036
Empathy (e.g. being interested in the story of someone else)	2,46	1,188
Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	2,52	0,942

[4] European Association for Architectural Education, 'PRINCIPLES AND PRACTICES OF ARCHITECTURAL EDUCATION: a position paper of the EAAE Education Academy', accessed October 6, 2022, https://www.eaae.be/wp-content/uploads/2018/10/EAAE-EA-Porto-position-paper-180901.pdf

Project management skills (e.g. time management, productivity,...)	2,8	1,242
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	2,89	1,047
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,09	1,042
Decision making (e.g. taking a stance, making judgments,...)	3,09	1,019
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	3,14	1,071
Being passionate about architecture	3,16	1,204
Dealing with uncertainty / being able to function in conditions of uncertainty	3,25	1,177
Presentation skills (e.g. selling an idea, public speaking,...)	3,27	1,078
Openness to other views and ways of living	3,27	1,123
Developing vision	3,28	0,983
Inquiring and questioning (e.g. investigating a brief for a project,...)	3,29	1,01
Producing something relevant	3,31	0,988
Collaboration skills (e.g. team work)	3,37	1,16
Constant learning and self-improvement	3,46	1,14
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	3,51	0,84
Visualization skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	3,53	0,907
Theory and History (e.g. of architecture, art, culture, humanities,...)	3,56	0,879
Being critical (e.g. taking critical distance from own work)	3,59	1,147
Flexibility (e.g. adaptability, being open for change and renewal,...)	3,62	1,129
Dealing with complexity	3,66	1,086
Work ethic (e.g. self-discipline, willingness to work hard,...)	3,66	1,202
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	3,68	0,941
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	3,69	1,189
Handling criticism	3,72	1,151
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	3,96	0,763
Endurance (e.g. working under pressure, handling stress and deadlines,...)	4,01	1,11

FLOW 4

	Mean	SD
Technical knowledge about buildings and construction (e.g. materials, physics, structures,...)	1,95	1,029
Being passionate about architecture	1,96	1,191
Theory and History (e.g. of architecture, art, culture, humanities,...)	2,09	1,199

Knowledge of sustainability (e.g. ecology, circular economy, energy performance, LCA,...)	2,15	1,177
Spatial skills (e.g. understanding space, sensitivity to spatial features,...)	2,78	1,315
Taking an artistic approach (e.g. addressing emotions, going beyond the conventional,...)	2,91	1,354
Visualization skills (e.g. hand drawing, model making, mixed media, artistic skills ...)	2,99	1,427
Business management skills (e.g. managing a business, company, department)	3,2	1,4
Developing vision	3,4	1,174
Mediating skills (e.g. negotiations, conflict mediation,...)	3,54	1,169
Inquiring and questioning (e.g. investigating a brief for a project,...)	3,59	1,217
Working with clients	3,6	1,186
Research skills (e.g. systematic investigation of a problem in order to gain a better insight)	3,66	1,068
Presentation skills (e.g. selling an idea, public speaking,...)	3,7	1,141
Producing something relevant	3,76	1,139
Openness to other views and ways of living	3,8	1,03
Empathy (e.g. being interested in the story of someone else)	3,82	1,041
Design-thinking (e.g. thinking out-of-the-box, solution-oriented, creativity,...)	3,84	1,094
Handling criticism	3,84	0,981
Digital skills (e.g. proficient use of hard- and software, parametric approaches, ...)	3,85	1,145
Being critical (e.g. taking critical distance from own work)	3,88	0,961
Decision making (e.g. taking a stance, making judgments,...)	3,96	0,962
Project management skills (e.g. time management, productivity,...)	3,96	0,999
Endurance (e.g. working under pressure, handling stress and deadlines,...)	3,99	1,006
Dealing with complexity	4,05	0,888
Collaboration skills (e.g. team work)	4,09	0,944
Dealing with uncertainty / being able to function in conditions of uncertainty	4,15	0,823
Determination (e.g. commitment, persistence, dedication, willingness to achieve,...)	4,19	0,828
Flexibility (e.g. adaptability, being open for change and renewal,...)	4,23	0,779
Constant learning and self-improvement	4,26	0,771
Work ethic (e.g. self-discinpline, willingness to work hard,...)	4,38	0,663

Below, the mismatches are presented.

FLOW 4

	Mean	SD
Mismatch_working_with_clients	-1,8	1,3255
Mismatch_business_management_skills	-1,7375	1,40292

Mismatch_mediating_skills	-1,4875	1,31201
Mismatch_emphaty	-1,3375	1,54218
Mismatch_project_management_skills	-1,15	1,4764
Mismatch_dealing_with_uncertainty	-0,8889	1,23491
Mismatch_decision_making	-0,8659	1,27427
Mismatch_constant_learning_selfimprovement	-0,7654	1,20698
Mismatch_collaboration_skills	-0,7	1,41779
Mismatch_digital_skills	-0,6829	1,52249
Mismatch_work_ethic	-0,679	1,10484
Mismatch_research_skills	-0,5854	1,21667
Mismatch_flexibility	-0,575	1,02839
Mismatch_openess	-0,5316	1,09586
Mismatch_determination	-0,4625	1,14675
Mismatch_producing_something_relevant	-0,4268	1,20729
Mismatch_presentation_skills	-0,425	1,40321
Mismatch_dealing_with_complexity	-0,378	1,16153
Mismatch_being_critical	-0,2927	1,04808
Mismatch_inquiring_and_questioning	-0,2683	1,35217
Mismatch_design_thinking	-0,1463	1,32518
Mismatch_handeling_criticism	-0,0988	1,34727
Mismatch_developing_vision	-0,0976	1,23338
Mismatch_taking_artistic_approach	0	1,5396
Mismatch_endurance	0,0617	1,4348
Mismatch_knowledge_of_sustainability	0,378	1,47941
Mismatch_vizualisation_skills	0,5732	1,56371
Mismatch_spatial_skills	1,1951	1,38278
Mismatch_being_passionate	1,2317	1,54998
Mismatch_theory_and_history	1,4756	1,22953
Mismatch_technical_knowledge	1,561	1,13418

Communicating with other people is the most frequent activity. Practical, executing work is also often carried out. Also, a lot of people consider their jobs as ‘helping others’. How

often people carry out these activities differs according to their field. The activities for which statistical differences were found, are flagged with an asterisk.

	Architecture (**flow 1**) (*M*)	Architecture + other field (**flow 2**) (*M*)	Related sector (**flow 3**) (*M*)	Unrelated sector (**flow 4**) (*M*)
Leading others*	3,33	3,66	3,53	3,58
Following orders and instructions	3,55	3,39	3,53	3,60
Practical, executing work*	4,00	3,91	3,43	3,81
Helping others*	3,56	3,64	3,77	3,81
Financial matters*	2,85	3,16	3,05	2,81
Managing the business, company, or department*	2,65	3,1	2,83	2,83
Artistic work (art) *	2,79	2,94	2,45	2,82
Developing new techniques or new ideas*	3,13	3,29	3,34	3,62
Selling products or services to consumers*	1,95	2,04	1,92	2,16
Giving training, education or guidance to others*	2,47	3,09	2,99	3,11
Creative work (being creative, searching for creative solutions,...) *	3,67	3,73	3,37	3,57
Communication with people within the business, company, or department	4,03	3,92	4,15	4,17
Communication with people outside the business, company, or department	3,81	3,77	3,80	3,69
Physical work, manual labor*	1,73	2,10	1,53	1,81
Taking care of, treating, or healing people	1,41	1,57	1,35	1,43
Taking care of, treating, or healing animals*	1,20	1,29	1,08	1,09
Outdoor work (working in gardens, forests or on the field) *	1,50	1,72	1,45	1,27
Working with or on machines*	1,61	1,81	1,43	1,64
Conducting and/or carrying out research*	2,12	2,69	2,81	2,30

Qualitative Results from the in-depth Interviews

From the interviews, the answers related to competences can offer qualitative information about how the architects think they have acquired them. During the interviews, one of the questions asked was: **What are the competences that you acquired that are most**

important in your job and why? And the second one was: **What did you take from your architectural education in your current job?** And the answers were:

F4-1. We learned a lot of architecture by listening to architects because that's very important, but I think I've also learned a lot of architecture, listen to people. And like with all this project that I was telling you about, related to **collaborative design or related to a Community** development associated with heritage management, listening to people on the way they understand what architecture means for them has helped me a lot so it's like both aspects.
I believe it's very **holistic** and that's very helpful afterwards in our nowadays, probably, we are not super experts at any point, but we can have control or understand at least every dimension of the project and that's something that I think it's very positive a in in the way we learn architecture

F4-2. Probably the most useful skill that I learned at school was **effort, manage workloads** which, on one hand, it is good, on the other hand, it is dangerous, because I think it's good if you manage it good, but it is also very painful because it's very difficult to keep it balanced, but I think I learned that I had a [...] capacity.
And then another good thing was that, despite being a very rigid system, I **learned to move through the holes.** You could be creative, if you were creative you wouldn't be stopped, you would be able to do it. I learned I do what I decide to do, not what they told me to do.
When I work with people like computer engineers and big data, for me it is not important the details but the whole vision. You need a global vision, as an architect, you need a global vision. So to be an architect is to acquire and have the tools to a **global vision**, to understand complexity. Local complexity and global complexity and how they are related. As in google maps, which is a way to see fragments of the city, but to understand its global vision it is another thing.

F4-3. The studies, the knowledge of some specific themes, for example, the theme about restoration of buildings, because of course, when we evaluate, there is the second part of our activities, that refers to the evaluation of the set of conservation of the properties. So we support the nomination, but also we support all the activities and about the state of conservation of the properties in particular for the properties in, at the risks at risk. So my knowledge about restoration of buildings is important because of course I can evaluate if a property needs some restoration work or not. So, because of course one of the of the criteria for the selection of property is exactly this one, if the property is in a good state of conservation or not, because if not, we need to improve the state of conservation to, to support activities for new or new restoration works, or studies researchers, and so on before starting nomination.
The lessons of history, probably it means that I was fascinated by this part of my apprenticeship. So, the importance of his history in terms of looking at it in a critical way , with the critical approach. So history is not only data and talking about effects, but it's also a lesson for the future. So this is really important also in architecture.

F4-4. It's not easy to answer because I as I was telling you before I work on many different topics, but for sure as many things I told you already: **the approach,** an approach that

always puts the problem or the target inside an environment, a landscape not only a natural landscape, but also an urban environment, people. And this is something that I think depends on the studies in architecture: I always have a, I always try **to imagine the future**. So every time that I deal with something, I try to imagine how that place, that the project could change in a better way. And no, always try to imagine something different. And I think this is the main skill that I bring to every kind of situation. And I think it comes from because I'm an architect.
Well it's, it's still relevant. I think it is a good thing to be an architect. It's something that you can bring in, in the work, in the challenge that you have, it's **an approach**. And it's something that I even learn studying architects and even meeting some extraordinary architects and this, you learn, you learn it through curiosity and through the approach they have, like, I had an incredible experience meeting De Carlo.

F4-5. It gave me **awareness of deadlines** and awareness that when you make something, make a project, it is done. It's not like an IT industry when you're building an app and you can always go back to that app and do upgrades and changes. You know, when the building is done, it's done. And that goes the same with my cakes, when I give it to the client, it's done, I have to say goodbye to it. So it's the pressure of making something that is like it's a whole, and, you know, it can never be whole, it can never be finished. You can always do better. You can always do more. So I learned throughout the school, how to handle that and **how to not put the pressure on something to be perfect,** because it can never be perfect, but it has to be done. And I think that that also helped me in my particular business, because every cake is like a project.
And I think that a lot of other people sometimes even say it even, they're not familiar with architecture and they're not in that field, but sometimes they say, oh, you can really tell that you're an architect from your cakes, from the pictures of your cakes. You can really tell that you're an architect. So I think that this artistic way of doing anything really comes from architecture.

F4-6. competences on planning, historical heritage; the need to work with people.
I think the very important thing is **imagination** and **visions.** I think it's very good for the mayor to have imagination and visions. I think it's very, very normal for architects to have a 3d imagination, but it's not normal for other people. They can't see these things in their brains. But also I can understand them. And that's why for me, it's important to, to make a lot of visualisations and a lot of speeches with citizens, to explain to them what's the reason for every project.

F4-7. I think the **toolbox** you come with when you come out of architecture is invaluable. Even if not, every course is taught in maybe the best way possible if you learn so many things. And if you manage to activate them afterwards, like it is what I, I think what I do very well at this point is I'm almost, I'm almost like a **translation machine** between architects, engineers, university professors, blah, blah, blah, blah. And I'm, I'm smart enough to understand what they're saying, even without maybe getting all the nuances, but I'm equally comfortable talking to a homeless guy, having lunch with him who has come to eat cause he has no food or with the kids from the neighbourhood who are bored as hell.

So this is what I think this toolbox permits me is, is to, to make the switch between these two worlds where you can see
I think what gave me was some kind of analytic mind, which has a lot of a big toolbox of things, not necessarily that I do them very well, but I know a little bit about a lot of things maybe.
F4-8. consulting is a lot about managing different parts of a problem and design is very similar. I wish they have told me in school that architecture was also very much in line with consulting
it makes you very flexible, it makes people very suited for consulting.

F4-9. It is quite different. I mean, I suppose the idea of sort of **critiquing one's own work** and sort of iterations of, of working on the same thing to make it better. I mean, that, that can be applied in fields. Yeah. So that sort of **work ethic,** I suppose, as well, because an architectural degree is quite intense in terms of the way you work, which taught me probably as much about how I don't want to work as how I do want to work.
I suppose a certain amount of creativity, although it's very different it's not at all the same type of creativity. Oh, just because I'm, I mean, being an architect, you know, sort of working with, well, they're much larger things. They're much larger projects in a way, I think, than just a book or another type of publication. Yeah, so it's part partly that, and also, yes, as, as I say, because I do work on some materials related to architecture, there's some of, some of the knowledge that I, I picked up while I was doing the degree, but in most senses, what I do now is very different, I think.

F4-10. I think architecture is really good for consulting in a way that we always were like, oh, let's design a hospital. Now it's your task to design a hospital. And nobody gives you lots of information. You have to figure it out yourself. And you are kind of, I think with every design, every task it's, there's lots of ambiguity. The person needs to get on and be challenged, and I think it's very similar to projects that we have. So I think that gave me this. I don't get afraid of things that I don't know. I know, I don't know things, so I'll learn it and it'll work out somehow just, you know, we have to work on it and it'll get eventually done. And second, I think it's always like, what I do is also client work and architecture is also client work when it comes to what the client wants, figuring out sometimes what the client wants and shouldn't want, or like, you know, something that they want. So I think it's similar to the consulting where we need to deliver a strategy

F4-11. to be used to deal with a lot of factors, a well rounded education. To be used to deal with a lot of factors, a well rounded education.

F4-12. I would say that the greatest benefit I got during my studies is interdisciplinary approach, i.e. being open to all other experts and expertise and knowing how to learn from them and how to interconnect them. City is an enormously complex mechanism: one has to cope with simultaneous (often opposing) forces and mitigate them in a way.
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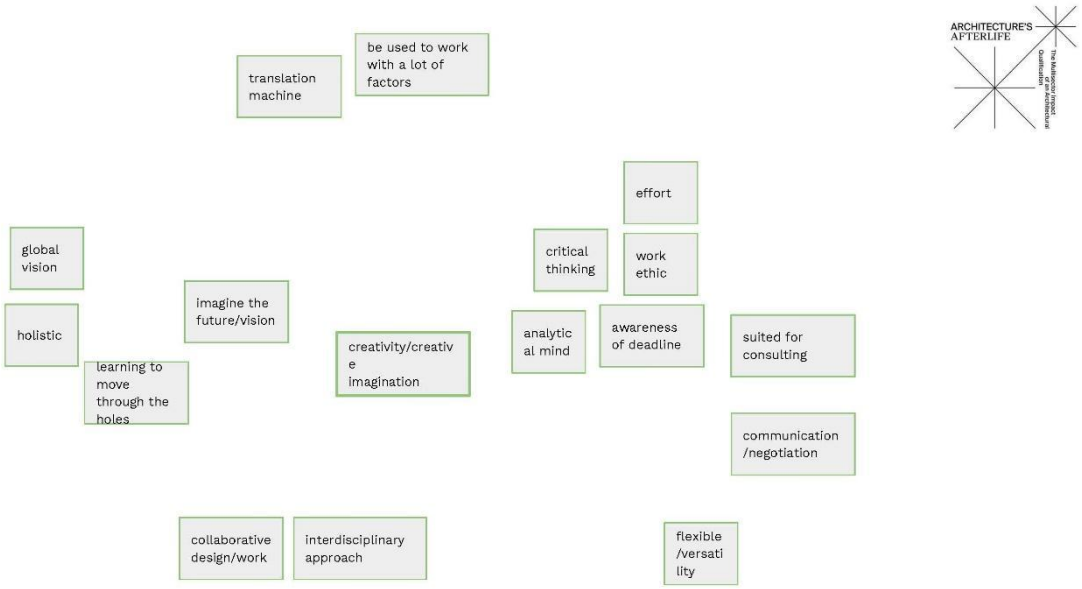


CONCLUSIONS WP4H

The Afterlife Survey and in-depth interviews show that architectural training prepares a variety of professions that are not necessarily directly related to architecture practice. These professions might be a temporary “deviation” from architecture, such as the choice of becoming a major, or they might be a definite professional choice. The chosen professions can vary and include journal editor, pastry chef, consultant manager of International relations at a university, game developer, virtual producer, OMG organiser, director of ecological innovation, and UNESCO representative. The professions chosen by architecture graduates employed in other sectors show how what is supposedly external to architecture is considered by the interviewees still related. This is insofar that the interviews applied to their everyday occupation the same “architectural thinking”--a design method–learned in school.

Architecture training is inherently flexible, and this is given by a combination of soft and hard skills. Respondents answered that ‘personal competences’ were the best acquired during education, and were the most needed in the workplace. The second most important competence used in the workplace was ‘cooperation competences’ which, however, reported a lesser degree of acquisition during the school years. The least acquired competence was, unsurprisingly, ‘employability’, yet quite important in the workplace. There is space for improvement especially in relationship to skills related working with clients, business and management skills, and mediating skills.

The results of the study suggest, then, architectural education allows different job paths and this should be acknowledged in architecture training as a resource for future graduates.

WP4I

STUDY OF REGIONAL MOBILITY IN RELATION TO QUALIFICATION

The Architecture's Afterlife study researched the regional mobility of architecture graduates in Europe. The quantitative results from the Afterlife survey as well as qualitative input from the in-depth interviews are being discussed in this report.

QUANTITATIVE RESULTS COMING FROM THE SURVEY

The Architecture's Afterlife collected data on the mobility of participating architecture graduates in Europe. This quantitative data has been analysed and led to the following results, providing information on regional mobility in relation to the architectural education, qualification and professional trajectories of architecture graduates.

MOBILITY: DURING STUDIES

4,5% of architecture graduates receive their diploma in another country than the country where they started studying.

	Frequency	Percent
Received diploma in same country as country where studies were started.	1469	95,5
Received diploma in a different country than country where studies were started.	70	4,5

No differences for occupational sectors were detected, and no gender differences were detected.

There were differences across countries (0 = no move, 1 = move):

When only including birth year >1970, 4,6% received the diploma in a different county than the country where studies had started. This is analogous to the previous results, as the majority of the respondents was quite young.

MOBILITY: AFTER STUDIES

16% of architecture graduates with a master thesis live in another country than the country where the diploma was received.

	Frequency	Percent
Living in same country as country where master thesis was obtained	1299	84
Living in different country than country where master thesis was obtained	240	16

No differences for occupational sectors were detected, and no gender differences were detected.

There were differences across countries (0 = no move, 1 = move):

When only including birth years >1970, 16,1% lived in a different country than the country where the master thesis was obtained. This is analogous to the previous results, as the majority of the respondents was quite young.

Employment

As mentioned in *Professional status*, 82% of the respondents had a paid profession, while 4% were unemployed. The reasons for unemployment are the following:

The most important reasons for unemployment are 'not enough suitable job vacancies' (26%) and 'the current economic situation'(23%)[5]. Also other reasons are mentioned. Several times, people mention 'not enough experience' or 'unsure what I want to do' as unemployment reasons. Also, more alarming reasons are described under 'other', such as: "where I was working until a week ago, they have decided to do without my services since hiring an intern is cheaper than a licensed person," "job offers have inhumane conditions", "great desire to work, but not with a minimum wage percentage," "poor salary after sacrifices in a shoddy faculty with stringent graduation deadlines," and "repeated bullying by male employers and being treated abysmally by them since I became a mother has led to depression, stress and anxiety in relation to working as an architect, causing me in the end to resign a position and not being in a fit mental state to recommence a job search".

There is no gender difference when it comes to reasons of unemployment.

The majority of the working respondents work full time.

Full time	89,6%
Part time (>70%)	5,2%
Part time (51%- 70%)	2,5%
Part time (50%)	1,9%
Part time (< 50%)	,8%

[5] The survey was held between June 2021 and April 2022.

The distribution of full time versus part time working respondents does not differ across fields of occupation. However, there is a trend of women working more frequently part time (13%) than men (8%).

The people who are working in architecture (**Flow A** and **Flow B**) have the following work situation:

Most architects work as private practice salaried employees (39%). Freelance work, and sole principal, partner/director architects are also common work situations.

	What situation describes your work situation as an architect?	
	Frequency	Percent
Sole principal	165	15
Partner/director	165	15
Freelance	225	20
Private practice salaried employee	433	39
Other private	28	3
Local/central government	50	5
Other public	40	4

People who are working in a related sector (from **Flow B** and **Flow C**) work in the following sectors:

Education and research form a rather large employment sector (24%).

	Frequency	Percent
Interior architecture	73	9
Urban planning	76	9
Landscape design	24	3
Building construction	78	9
Engineering	34	4
Consultancy	74	9
Building materials	10	1
Real estate	39	5
Creative industries	55	7
ICT	14	2

Governance/local or national authorities	60	7
Primary or secondary education	18	2
Higher education	99	12
Research	84	10
Other	90	11

If we look at the number of students who start architectural studies in the countries: United Kingdom, Croatia, Spain, Italy and Belgium, and compare them with the number of students who finish architectural studies in these countries, we observe a different percentage that may indicate some trends regarding mobility during studies. (Table 1 and Table 2)

TABLE 1. NUMBER OF STUDENTS INITIATED ARCHITECTURE STUDIES IN ARCHITECTURE BY COUNTRY

United Kingdom	178
Croatia	230
Spain	285
Italy	134
Belgium	193

TABLE 2. NUMBER OF STUDENTS GRADUATED IN ARCHITECTURE BY COUNTRY

United Kingdom	123 (69,10%)
Croatia	218 (94,78%)
Spain	241 (84,56%)
Italy	126 (94,02%)
Belgium	182 (94,30%)

And by comparing the number of students who finish their studies in one country and the number of architects working in the same country or in another.

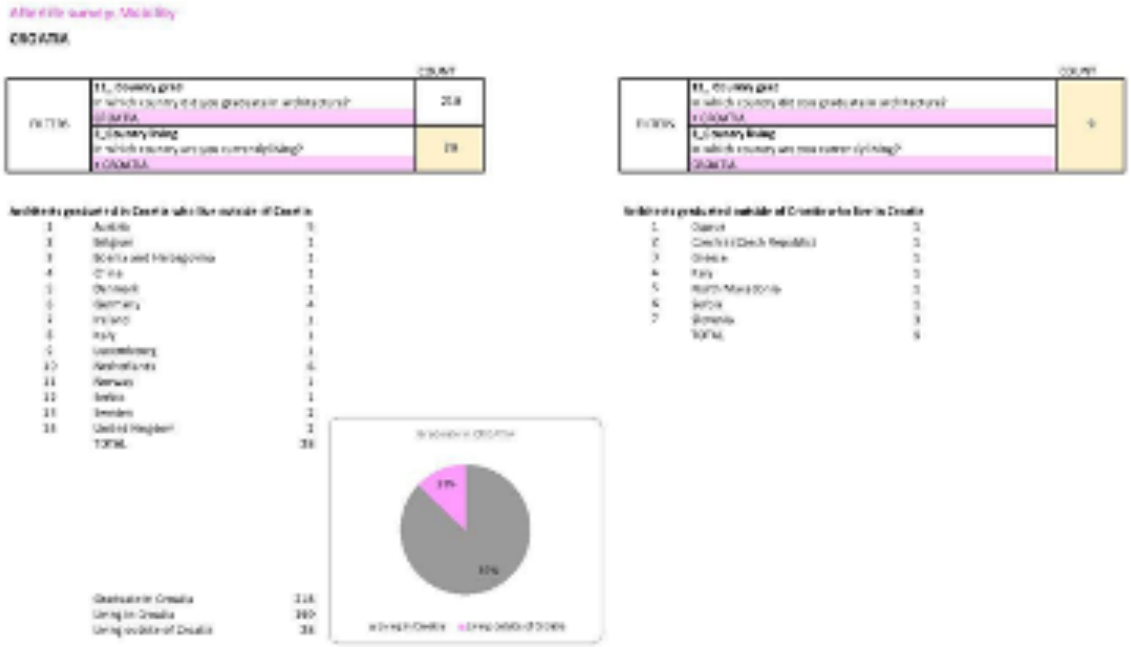
REGIONAL MOBILITY FOR SPECIFIC COUNTRIES

The mobility of architecture graduates has been analysed more in depth for the countries of the participating Afterlife research partners as these had a higher participation rate in the Afterlife survey.

Belgium

For Belgium, the Afterlife survey identified that from the 182 architecture students who graduated in Belgium, 20 were no longer living in Belgium at the moment of participation. This results in an outward mobility of 10,9%. 13 unique countries were identified, of which 9 situated in Europe representing an internal European mobility by 13 out of the 20 outward moving graduates.

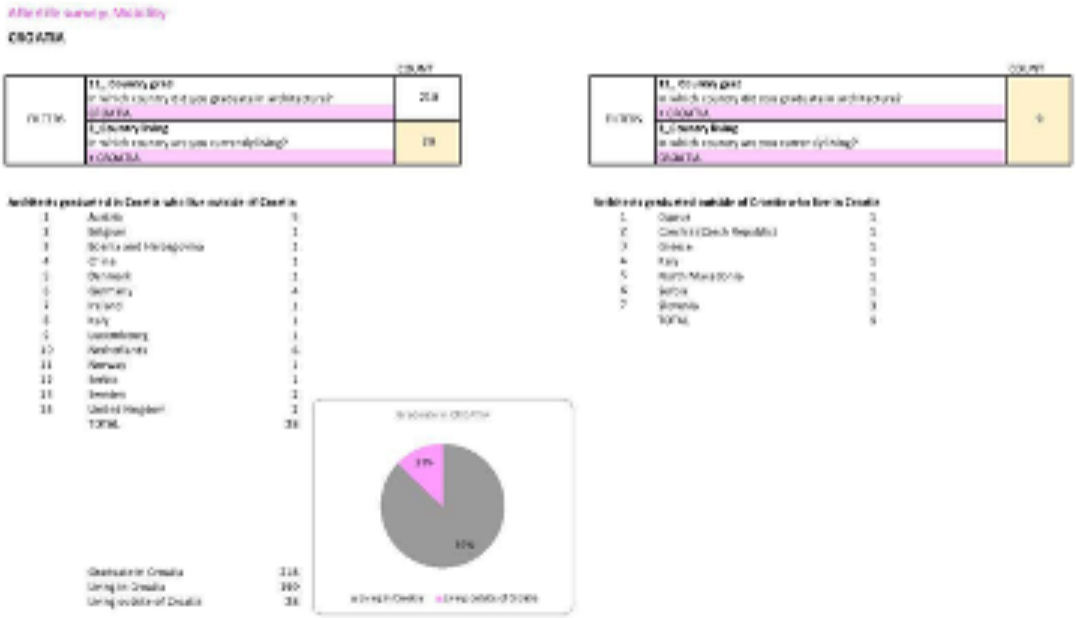
From the Afterlife survey participating architecture graduates, 12 of the participants living in Belgium at the moment of filling in the survey did not graduate there. For this inward mobility 9 unique countries were identified, of which 7 are situated in Europe (Turkey not included). Yet this result is biased as the distribution of the survey targeted architecture graduates from European universities and schools.



Croatia

For Croatia, the Afterlife survey identified that from the 218 architecture students who graduated in Croatia, 28 were no longer living in Croatia at the moment of participation. This results in an outward mobility of 12,8%. 14 unique countries were identified, of which 13 situated in Europe representing an internal European mobility by 27 out of the 28 outward moving graduates.

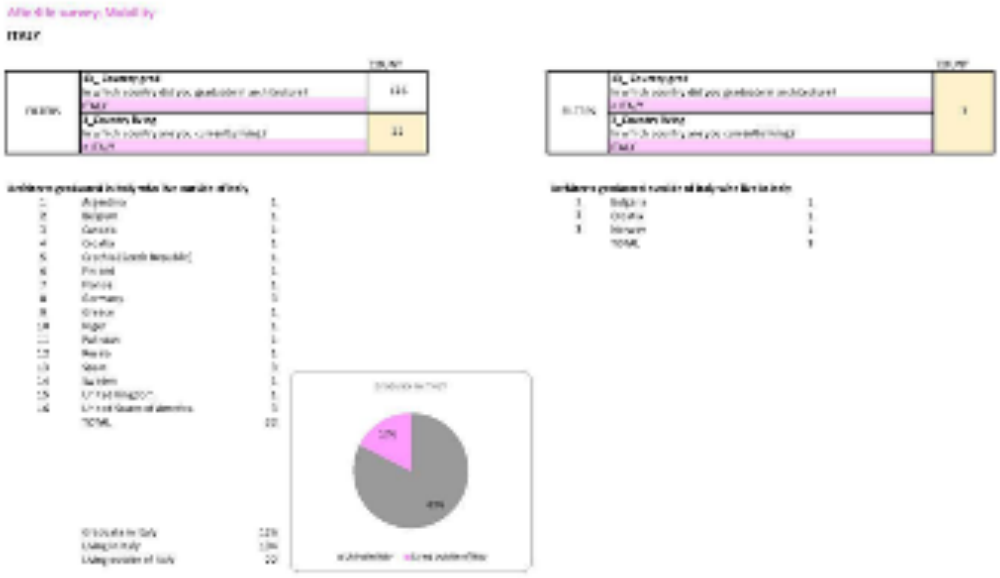
From the Afterlife survey participating architecture graduates, 9 of the participants living in Croatia at the moment of filling in the survey did not graduate there. For this inward mobility 7 unique countries were identified, of which all are situated in Europe. Yet this result is biased as the distribution of the survey targeted architecture graduates from European universities and schools.



ITALY

For Italy, the Afterlife survey identified that from the 126 architecture students who graduated in Italy, 22 were no longer living in Croatia at the moment of participation. This results in an outward mobility of 17,5%. 16 unique countries were identified, of which 10 situated in Europe representing an internal European mobility by 14 out of the 22 outward moving graduates.

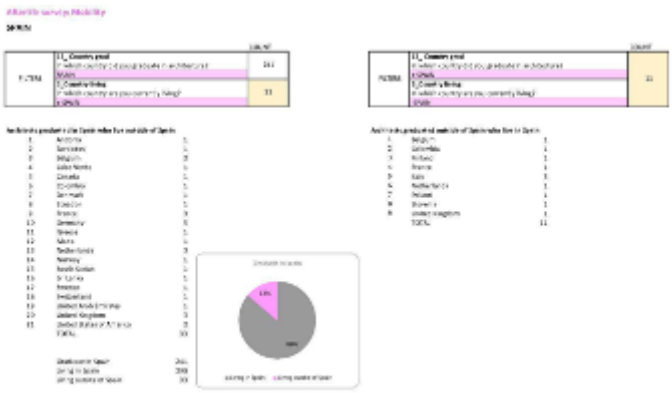
From the Afterlife survey participating architecture graduates, 3 of the participants living in Italy at the moment of filling in the survey did not graduate there. For this inward mobility 3 unique countries were identified, of which all are situated in Europe. Yet this result is biased as the distribution of the survey targeted architecture graduates from European universities and schools.



Spain

For Spain, the Afterlife survey identified that from the 241 architecture students who graduated in Spain, 33 were no longer living in Spain at the moment of participation. This results in an outward mobility of 13,7%. 21 unique countries were identified, of which 12 situated in Europe representing an internal European mobility by 23 out of the 33 outward moving graduates.

From the Afterlife survey participating architecture graduates, 11 of the participants living in Spain at the moment of filling in the survey did not graduate there. For this inward mobility 9 unique countries were identified, of which 8 are situated in Europe. Yet this result is biased as the distribution of the survey targeted architecture graduates from European universities and schools.

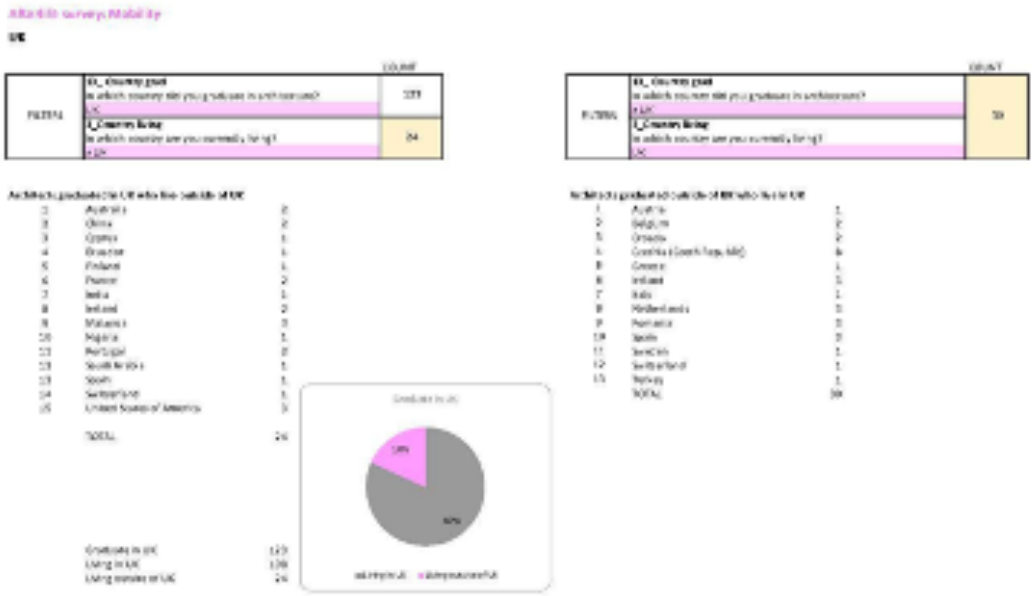


The United Kingdom

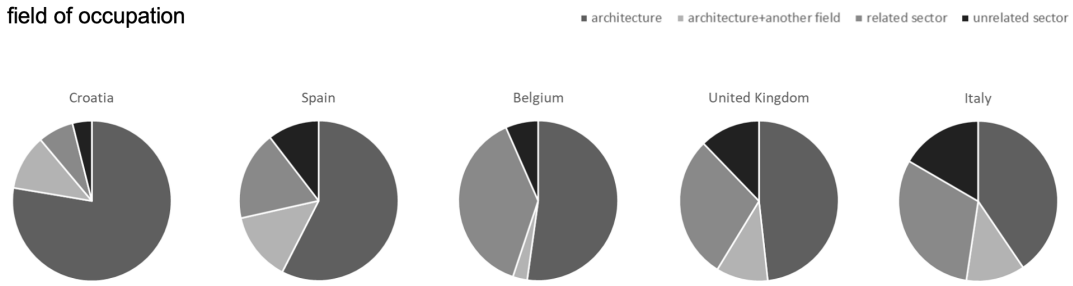
For the United Kingdom, the Afterlife survey identified that from the 123 architecture students who graduated in the UK, 24 were no longer living in the UK at the moment of participation. This results

in an outward mobility of 19,5%. 15 unique countries were identified, of which 8 situated in Europe representing an internal European mobility by 12 out of the 24 outward moving graduates.

From the Afterlife survey participating architecture graduates, 30 of the participants living in the UK at the moment of filling in the survey did not graduate there. For this inward mobility 13 unique countries were identified, of which 12 are situated in Europe (Turkey not included). Yet this result is biased as the distribution of the survey targeted architecture graduates from European universities and schools.



In addition, when looking at Belgium, Croatia, Italy, Spain and the United Kingdom, regional difference between the amount of graduates working in different professional trajectories (Flows) vary as illustrated by figure x. Of the listed countries Italy has the lowest percentage of architecture graduates working in building architecture (Flow A), with the biggest transfer to unrelated sectors (Flow D). Belgium is made by the highest percentage of graduates working in a related sector (Flow C). Croatia has the biggest percentage of architecture graduates working in the building architecture sector (Flow A).



QUALITATIVE RESULTS COMING FROM THE IN-DEPTH INTERVIEWS

With this data, reviewing the responses of the interviewees may offer some insight into the decision to move to another country.

During the interviews, the following questions were asked**: What was your trajectory from AE towards your current occupation?** And these are the answers:

FLOW 1

F1. 01:We are five. Four founding partners plus one young partner. We have been together since 1994.

F1. 02: I worked in different offices before now. Always working in urban and intermediate scale projects.

F1. 05: Two years internship. Worked at Sant Lucas School of Architecture. For ten years a practice with another associate. and up to seven people.

F1. 06: Collaboration with various companies, engineering and architectural firms

F1. 08: **Internship in Denmark and in Australia**. Employed as a researcher.

F1. 09: **Three years internship in Germany**.

F1. 12: **Internship in Norway and Indonesia**. Worked at Hopkins Architecture.

FLOW 2

F2. 01: When we work in the office we think it is at the same time, not only like a professional task or solving a problem that usually it's to realise a project, but also we think that there is a part of research and a part of constant learning.

F2. 02: It wasn't a decision, it was more of a case, just what happened in life, it was a serendipity case. You know I was looking for something for my thesis and I stumbled into a very interesting magazine and all of a sudden, I decided to start a magazine.

F2. 03: 2011 is when they asked me to enter the Green Building Council.

F2. 04: After three years (of the degree) when I took the exam to be a licensed architect, after that, I decided to quit architecture and I switched to other professions. I just wanted to fulfil all licences that I needed

FLOW 3

F3.02: Well, I started to study architecture in 2002. And I study architecture thinking that I will become an architect. And, then when I finished, it was this big economical crisis and there was no work. And because of that, that gave me some kind of freedom because I couldn't, I was working in a bar before finishing my degree. And then I finished my degree and I continued in the bar and everybody was working other things or going abroad for work or people who were working, were working for free at least here in Spain. And then, I started to develop photography, I started because I like it. And then I felt more and more passionate and I started to study. It's just that you are not obligated to do anything because there is no work.

F3.03: Shortly after school, I was working for several architecture offices. [...] I made my own, but then I kind of, uh, uh, started to work for an architecture office inside of, uh, which the, they, they, they started also some kind of an arch blog let's say. So I was invited to work as both an architect and, uh, co-editor in chief of this project.

F3.04: internship in architecture office, after the master. After 1 year understood she didn't want to stay. **Started a master in a specialisation as part of an EU program**. This also required an internship in this field. "And I was super lucky." [...] Stayed in the place of the internship for 6 more years. Was "extremely interesting".

F3:05: Passion since 15 years was photography. For study I decided to do something creative "and that was architecture". But it was not my passion. [...] degree architecture in 2000, told my father I was working in a studio, "oh it's a photography studio".

F3-07: Started working in an office while studying, + 1 more year in an office and then working in the public sector. Everyone was happy but I was bored. "I got fed up basically because I wanted more." [...] **Decided to leave for the UK, London and to study lightning and light.**

FLOW 4

F4. 01: I studied at the University of **Valencia**, did an Erasmus in Venice. worked for a couple of years as an architect. Went to **Australia and South America** and there I discovered that preservation is not only of buildings but also of landscape and culture. Started to work for the Valencia Municipality and became responsible for environmental policy in this office

F4. 02. school was an international experience because I belong to an international experience of architecture students. After school I travelled, and took the job at the university but as an administrator and not as a teacher. I also do architecture with my husband.

F4. 03: School of Specialization in Restoration (2 years), worked as an architect for 9 years, entered in Soprintendenza, and then in the **UNESCO**

F4. 04: Doctorate in environment, scuola di specializzazione, started to work for Legambiente just after graduating, started teaching at the university, now employed at Legambiente full time. Then at a certain point I decided to continue with Legambiente then in the university and I had much more freedom.

F4. 05: So I still do really love architecture, but in terms of business and my business path I just, I saw this opportunity that was presented to me because cakes were my hobby and there was a lot of attention around it.

F4. 06: First of all, after school, I spent maybe 15 years in architecture, occupation in architecture jobs, I changed maybe four design studios. And now I am mayor of the city

F4. 07: I worked as an architect but not for long. I started to work for the non profit organisation that I now direct as a football coach for the homeless.

F08: I did two masters after architecture to specialise in marketing.

F4. 09: I think I've always had, I've always had a passion for reading and books, and so it really was following my heart in one way. I was also at school, very interested in art and design. And so it was sort of trying to decide which way to go when I was deciding what degree to do. And I think I just later changed my mind, but it's also partly to do with architecture, being quite a male dominated profession.

F4. 10: **I studied first in the Czech Republic** at Czech technical university.There, I finished my masters and then I studied planning, **international planning in the UK at the Bartlet**. To start working as a consultant was basically just, I think, a coincidence. It was, I think, quite hard to find something in architecture that would also let's say pay the bills. I moved from the **Czech Republic to London**, back to CZ when I started working there for 2 years, then in London, **Dubai and Germany** now.

F4. 11: went to school in **Prague, did an Erasmus in Ireland**. I found a job in Ireland for two years. **went back to Prague** to graduate. **Came to Frankfurt** to work at my current office.

F4. 12: I was always interested in (hidden) forces that shape the city. And I was always irritated by the way our city was governed. It always seemed to me that too many very important (city planning and other) decisions were made in an arbitrary way and not in public interest. So, my shift from teaching and practice to politics is quite common-sensical: I wanted to contribute in making my city a better place (in every sense: spatial, communal, infrastructural).

My inclination toward political engagement started in 2017, when a new political party came to life on the local scene. The nucleus of this new option was a group of former activists who were ideologically close to the Green Left movement in Europe. I joined as an urban planner (I did my doctoral studies in the field of urban planning) and housing expert (I used to teach housing design and I worked as a practitioner in that field) and started to deal with planning and housing shortage issues in our city. This new party had moderate success in the parliamentary elections in 2020 and huge success in local elections in 2021. It wasn't an easy decision. I left my former workplace (School of architecture) after exactly 20 years at the moment when I felt that I had finally matured enough as both a teacher, researcher and a practitioner.

CONCLUSIONS WP4I

Architectural graduates are becoming more mobile. This is the result of the policy established by the institution of the Erasmus program since 1987.[6] But there are also other factors that determine the increasing mobility of architecture graduates in the last 20 years. Interviewees mentioned mobility as an outcome of the financial crisis. For instance the financial crisis in 2008 was

[6] Council decision, OJ L 166, 25 June 1987

mentioned. Graduates from European southern countries like Spain found themselves with no job prospects, and thus they searched for alternatives in foreign countries and more prosperous economies. Another reason is the need to further specialise in subjects that are best provided by institutions in specific countries. For instance, an architecture graduate in Spain followed her passion in pursuing restoration and the way in which restoration has developed as a field of study in the last 20 years. This brought her to move from Spain to Venice to study techniques of building restoration. But she went on to study restoration in South America and in Australia where there is an awareness of a more “holistic” approach to restoration including not simply buildings, but the environment and the indigenous populations inhabiting it. In this case, it is clear that her journey was dictated by the specific field that interests her and the way this field has developed in the last years in relation to the specific environment that wants to preserve. Lastelly, interviewees mentioned the very training of architecture that brings you to “travel” throughout your studies in different places–for instance with History and Theory of Architecture courses. This has obviously an historic justification in the concept of the Grand Tour tradition of the 17th to early 19th-century in Europe. Yet history and theory courses are turning into global histories of architecture, further contributing to develop an innate curiosity of architecture graduates towards travelling world-wide.

The results of the quantitative and qualitative analysis offers an increment of both architecture graduates and architects towards mobility in the European Community and world wide. In this context, to facilitate mobility both in school and outside of the school path seems vital to the development of the field and the profession.

WP4j

FORMULATION OF RECOMMENDATIONS REGARDING EMPLOYMENT, GUIDANCE ON SKILLS AND QUALIFICATION

QUANTITATIVE RESULTS COMING FROM THE SURVEY

The survey offer some information about employment (see WP1)

EMPLOYMENT

As mentioned in *Professional status*, 82% of the respondents had a paid profession, while 4% are unemployed. The reasons for unemployment are the following:

The most important reasons for unemployment are 'not enough suitable job vacancies' (26%) and 'the current economic situation'(23%). Also other reasons are mentioned. Several times, people mention 'not enough experience' or 'unsure what I want to do' as unemployment reason. Also, more alarming reasons are described under 'other', such as: "where I was working until a week ago, they have decided to do without my services since hiring an intern is cheaper than a licensed person," "job offers have inhumane conditions", "great desire to work, but not with a minimum wage percentage," "poor salary after sacrifices in a shoddy faculty with stringent graduation deadlines," and "repeated bullying by male employers and being treated abysmally by them since I became a mother has led to depression, stress and anxiety in relation to working as an architect, causing me in the end to resign a position and not being in a fit mental state to recommence a job search".

There is no gender difference when it comes to reasons of unemployment.

The majority of the working respondents works full time.

Full time	89,6%
Part time (>70%)	5,2%
Part time (51%- 70%)	2,5%
Part time (50%)	1,9%
Part time (< 50%)	,8%

The distribution of full time versus part time working respondents does not differ across fields of occupation. However, there is a trend of women working more frequently parttime (13%) than man (8%).

The people who are working in architecture (**flow 1** and **flow 2**) have the following work situation:

Most architects work as private practice salaried employees (39%). Freelance work, and sole principal, partner/director architects are also common work situations.

	What situation describes your work situation as an architect?	
	Frequency	Percent
Sole principal	165	15
Partner/director	165	15
Freelance	225	20
Private practice salaried employee	433	39
Other private	28	3
Local/central government	50	5
Other public	40	4

People who are working in a related sector (from **flow 2** and **flow 3**) work in the following sectors:

Education and research form a rather large employment sector (24%).

	Frequency	Percent
Interior architecture	73	9
Urban planning	76	9
Landscape design	24	3
Building construction	78	9
Engineering	34	4
Consultancy	74	9
Building materials	10	1
Real estate	39	5
Creative industries	55	7
ICT	14	2
Governance/local or national authorities	60	7
Primary or secondary education	18	2

Higher education	99	12
Research	84	10
Other	90	11

LIFE SATISFACTION

Life satisfaction was measured on a Likert scale from 1 (= Strongly disagree) to 5 (= Strongly agree), with items such as “in most areas my life is almost ideal”, “So far, I obtained the things that I wanted most in life”. The average life satisfaction was 3,4 (*SD* = 0.76), which is slightly leaning towards the ‘satisfied’ side of the spectrum.

However, there is a difference across the occupational sectors. People who are working in a related sector (**flow 3**) seem to be the happiest with their lives. People who are combining architecture with other sectors (**flow 2**) report the lowest life satisfaction.

No differences in life satisfaction were found for gender.

Life satisfaction is the highest for married or widowed people, and the lowest for singles. People who are in a relationship or people who are divorced score in between. The more children people have, the more life satisfaction they report. These trends might be partially explained by age. The older people get, the more life satisfaction they might report. However, when we add birth year in the model, birth year becomes insignificant, and the impact of marital status and children remains.

	Mean life satisfaction	SD	N
Single	3,1394	,80880	297
In a relationship	3,3764	,75606	516
Married	3,6286	,68374	511
Divorced	3,4000	,69857	31
Widowed	3,8182	,69544	11
Total	3,4233	,76281	1366

	Mean life satisfaction	SD	N
No children	3,3064	,77379	874
1 child	3,5679	,72879	162
2 children	3,6373	,69361	241
3 or more children	3,7099	,65338	91
Total	3,4225	,76306	1368

Work-life conflict

Work-life conflict was measured on a Likert scale from 1 (= Strongly disagree) to 5 (= Strongly agree), with items such as “It has been difficult for me to fulfil my family responsibilities because of the amount of time I spend on my job”, “I find it difficult to “switch” off when I finish work,” “My work effects my enjoyment of my social life,” ”I have arrived at work too tired to function well because of the household work I had done”. The higher the score, the less balance is experienced. Note that this scale not only measures the impact of work on private life, but also the other way. The average life work-life balance was 2,9 (*SD* = 0.76), which is approximately in the middle of the work-life balance spectrum.

However, there is a difference across the occupational sectors. Only **flow 1** and **flow 2** were compared. In the future, everyone with a paid profession will be questioned about work-life balance. People who are combining architecture with another sector (**flow 2**) seem to experience more work-life conflict (*M* = 3,21) than people who are solely working in architecture (*M* = 2,92) (**flow 1**).

No gender effects were found for work-life conflict, which means that men and women report equally low or high work-life conflict. Also, marital status and the presence of children did not affect work-life conflict.

Job satisfaction

Job satisfaction was measured on a Likert scale from 1 (= Very dissatisfied) to 5 (= Very satisfied), with 19 items who addressed both intrinsic aspects of the job (e.g. “The amount of variety in your work”, “Freedom to choose your method of working”) and extrinsic aspects of the job (e.g. “the physical working conditions in your office/studio”, “your job security”, “your relationship with other construction professionals”.) The average job satisfaction leans towards the satisfied side (*M* = 3,6).

There is no difference between people working solely as an architect (**flow 1**) and people combining architecture with another sector (**flow 2**). **Flow 3** and **flow 4** were not investigated, as this scale is a specific architecture job satisfaction scale.

No gender effects were found for job satisfaction.

Perceived success

Besides job satisfaction, respondents were also asked about their perceived success. Perceived success was measured on a Likert scale from 1 (= very unsuccessful) to 7 (= very successful) with the item “How successful do you consider yourself in your job as an architect in general?” The average perceived success was quite high with an average of 5.12.

There is no difference in perceived success between people working solely as an architect (**flow 1**) and people combining architecture with another sector (**flow 2**). **Flow 3** and **flow 4** were not investigated, as this scale is a specific scale for perceived success as an architect.

Perceived success did not differ across gender, but there are country differences.

Turnover intention

Turnover intentions were measured on a Likert scale from 1 (= Strongly disagree) to 5 (= Strongly agree), with 4 items (“I will be actively searching for a job outside of the architectural profession

over the next 12 months," "I will be actively searching for a new jow over the next 12 months," "I often think about leaving the architectural profession," and "I often think about leaving my job"). A higher score equals a higher turnover intention. Turnover intentions were rather low (*M* = 2.22).

Turnover intentions were higher for people who combined their architecture job with a another job (**flow 2**) than people who solely work as an architect (**flow 1**).

	Mean turnover intention	SD	N
Working exclusively as an architect	2,1850	,95513	650
Working as an architect and having a part time occupation in another field	2,4053	1,06878	103
Total	2,2151	,97365	753

No gender effects were found for turnover intentions.

QUALITATIVE RESULTS COMING FROM THE IN-DEPTH INTERVIEWS

From the analysis of the interviews, the questions that were asked in relation to this topic were: (Concerning work-life balance) in order to get information about employment, guidance and qualification.

FLOW 1:

F1: As a Partner, or owner, or manager in such a big company **you need to stay longer**. You know, always come earlier. And that **creates problems for family** relationships. It's better if you're just an employee

F8: Architecture is **really stressful**. It **never pays off the amount of hours you do. I decided not to have children because I should have reduce the time** I dedicate to my job.

F9: It's **feasible to balance working and family life** for an architect.

F10: We have a **work-life balance policy dedicated to everyone in the company**

F12: **Bad habits are learnt from the university**. You are trained to work with no limits: you breathe architecture. I don't know many architects having a good balance between work and private life. Architecture is everywhere it's always in my mind.

Some answers show the stress suffered by those who are self-employed or work for companies with a high level of stress, while there are some whose companies guarantee wellbeing and think that it is easy to reconcile work and personal life, while others say that they do not want to have children because it would mean a limitation in their work dedication. And one of the responses points to the university's responsibility for generating bad work habits.

FLOW 2:

F4: I have much more financial security. we always have work the (financial) security is higher in this sector

F5: until some time ago I was very unbalanced. **Too much work. It is also true that the work I have been doing is exciting**, I always say it, I'm not stinging stone, it is a work of continuous innovation, of taking things forward. It is a very nice job

F6: But I try not to work extra hours and even during COVID, all these times I tried to keep this nine to six working hours and I try to stick to it.

F8: Well, the first problem is that **I'm not regarding this as a work**.

This is the first level of the problem because then it's not something that I'm doing 8 hours a day on my working hours because it's not only a source of income, but it's also a passion and even a way of looking at things, a way of looking at the world around. So then it's different. (...) Well, the first problem is that I'm not regarding this as a work.

This is the first level of the problem because then it's not something that I'm doing 8 hours a day on my working hours **because it's not only a source of income, but it's also a passion and even a way of looking at things, a way of looking at the world around me**.

F9: I'm happy. I let myself have my work. Of course, the difficult moments, you get angry. You don't like your colleagues, you quarrel with your boss when you're chief. But life is that so**, I can say that I'm lucky in any way because everyday I do what I like to do and I can change some things that I don't like.** So I think I'm happy

F10: **it's pretty good**. One of the other things that was an advantage to moving for me was that my parents are getting older, and sometimes they need to handle it doesn't matter. I can just shuffle things around

F11: I really try to keep a good work life balance. I think **there is a bit of a toxic culture and architecture of this having to stay late**. And again, I think that's ingrained into us from studying. (...) I try to then embrace the moments where it's not as high intensity and really try and **push myself to finish on time to allow that work life balance and to try and even out.**

(...)

I think it's like pressure from other people as well. And I think, yes, really learning to be self assured, in a way and to have the confidence to say no, I don't need to do that. I'm doing a good enough job

F12: I'm going to start with this typical joke about working for the government. It's quite good, especially compared to, **when you study architecture, you get this image that you need to work hard**, and **you need to work nights**. (...) But now **my work-life balance is very good**. I think that's not something I would have, if I would stay in the profession, I think I would still have that anxiety.

F13: **Not so good**. I think. Because I was kind of involved in starting a new team, it was a lot of hard work to establish ourselves to people to really build ourselves as a team. And I think particularly with the pandemic over the last two years, it means **working from home means working all the time**. (...) I think it makes you examine yourself and what how healthy you're being, I think trying to get out, and that's why we got a dog dying to get out of the house and try to be a bit more healthy

FLOW 3:

F01: And I also have the impression that, the reason why you get it actually, is not a lot about if you are not **well paid because there are enough people waiting after you**. So that's also a really strange thing because it's really, not even quality that is important, but it's more that you are able to produce fast and quick and not really think about it.

F07: **Feeling very grateful and happy**.

F08: Yeah, it's let's say quality of life is also important for me, but with doing both, of the trajectories or both of the domains, it also takes a lot of time. So it's also for me it's the best of both worlds, but it also asks for, for me a lot. It's not that it's all coming by itself. It's **also working a lot in the evenings and weekends**, but that's also a bit what an architect is, is, made for <laugh>. I do think that **we are able to deal with flexible hours and working hard for sure**.

F09: partially because now **I'm doing something I feel I'm doing well**. I don't feel bad about my results. And also because the work environment is very different. Like we already mentioned the first thing. I'm a full time employee in architecture. There's this, like, I think most architecture companies do this false self-employment. So there's a lot of insecurity and toxicity in the workplace. And I'm not sure if it's the same in Belgium, but like people have to bring their own computers. They get paid, like we have this super difficult architecture education and **we get paid like people with no education at all**. I tried to count it yesterday and it's what I got back then was similar to the very minimum wage, much, much lower than the guaranteed wage for architects

F10: **We worked as architects and hardly did anything else**. And then we both got married. And he got married first and he would like, he was about six months ahead of me, something like that. And there was one day we were, I got married and I, I got married in January, 1980. And one day later in 1980, we were working late. I was working at seven or eight o'clock in the evening and I said, I'm gonna go home. And he said, why do we need to finish this? And I said, well, you want to stay, you can stay, but I'm going home. And he said to me, you mean, you love your wife more than me. And I said, yes, you love your wife more than me as well. And he said, yeah, I agree. And I said, well, I'm gonna go home. So I went home and then a week later he said, I don't think we should be working together anymore.

F11: I'm still **at the beginning of the road, so I do tend to work a lot**. And this has to do with the fact that, well, I'm not that experienced. And also it has to do with the fact that **I really love what I'm doing**. So from time to, **I really don't mind just spending a few more hours and people who I work with**, they do see that and they do appreciate that. So from that point of view Arab is quite flexible. So if I **would like to better balance my personal life and my work life**, I definitely can do that. I think one thing that is quite important and maybe is something quite known is **you don't really earn that much**

F12: Well I think **I'm able to put limits on work and stop working**. I'm not working over hours or anything like that. I mean, I am when it's some deadline or something and I see that at any given time, I'm not able, but it's not till noon every day. It's two or three days extra work, few times a year. So I think **that's okay and healthy** and I don't wanna work more than that.

I don't think that's influenced from work because I know many of my colleagues that work very hard and I think that they have, I mean, **we have different wishes**. I mean, for them it's important to work in an architectural office with big names and stuff like that. And for me, **I don't think that's so important. I wanna have life outside of my work** and probably because I do have some, I mean, very much other activities. For instance, I have sports and reading clubs and all the things that couldn't get arranged together with working so much and being exhausted every day.

FLOW 4:

F05: And I think that is really wrong because **you can produce quality architecture or quality cakes or quality, whatever, and still have your own life** that is not separated from your profession. So I think a lot of architects think that their profession is their life and they mix it and you have to call your investors on Sunday and on Christmas and on Easter.

F09: I'm saying **you can't be an architect and have children**, but I think I was looking ahead to thinking at some point I'll have children and maybe **I'll follow a career that is a little bit more easy to combine with that**. And what I do is certainly just because I set my own hours, so, you know, I can pick up the children from school or whatever.

F10:: I **decided to leave architecture because I had other opportunities and payed double. Consulting is still demanding,** but the pay is different.

F12: What is your work/life balance? **12-13 work hours per day. My personal life doesn't exist at the moment** and it's been making me worried.

CONCLUSIONS WP4J

During the development of the project, and the different participations in the Multiplier Events, it became clear that the main driving force for change in teaching and learning processes, until now, has not been the competences only, but the contextual conditions, bounded by the needs that are manifested in social relations, the transformations of our world, the problems of working in another sectors and the compatibility with other life. How can these challenges be introduced into the curriculum of schools? And in a complementary way, knowing that the drivers of change take place in different spheres: state, administrative, academic, business, political, social... can academics lead this initiative to transform the profession through education?

Some answers show the stress suffered by those who are self-employed or work for companies with a high level of work. There is only one who expresses the concern of the company to guarantee well-being and thinks that it is easy to reconcile work and personal life, while another recognises the renunciation of having children because it would mean a limitation in the dedication to work. And one of the responses points to the university's responsibility for generating bad work habits.

Probably, with regard to the comments observed in the interviews, one of the issues that could be improved in the training of architects could be to change the way of learning and avoid comments that refer to spending sleepless nights, that you have to work without being able to do anything else....

This is a difficult issue to improve, because the more passionate an activity is, the more involved it is in life and the harder it is to set limits.

First, some general information about the respondents of the AAfterlife survey is presented. Second, the match between education and industries is investigated in terms of competences. Third, topics of interest (related to predefined work packages) are discussed. Themes include education pathways, drop-out pathways, mobility, employment, life satisfaction, work-life balance, job satisfaction, perceived success, and financial security.

Where indicated, differences between occupation fields (i.e. flow 1, flow 2, flow 3, flow 4), gender, and country are investigated and discussed.

TABLE TITLE (#5 IN HIERARCHY)

		Table text (#6)	Percent	Valid Percent	Cumulative Percent
Valid	False	738	30,6	30,6	30,6
	True	1674	69,4	69,4	100,0
	Total	2412	100,0	100,0	

image or table description (#7) in hierarchy